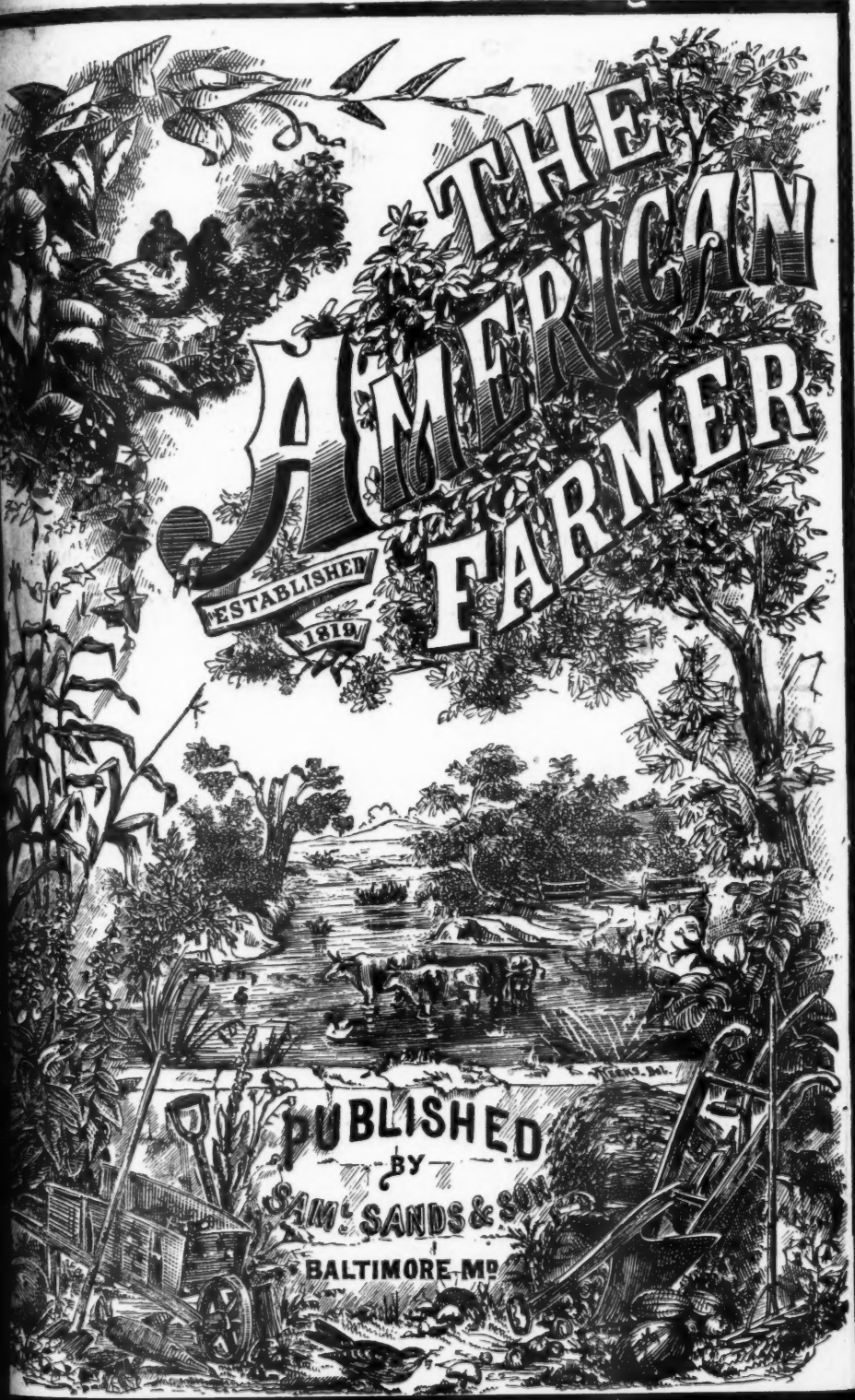
JULY, 1876.


THE
AMERICAN
FARMER
ESTABLISHED
1819
PUBLISHED
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BALTIMORE MD

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Joshua Horner, Jr.—Dear Sir: The following is the result of analysis of a sample of your Bone Dust drawn by myself from a lot of seven tons lying in your warehouse:

Moisture, (deter. at 212° F.)	3.74 per cent.
Organic Matter	40.12 per cent.
Containing—Nitrogen, 4.08; Ammonia 4.95	
Inorganic Matter	56.14 per cent.
Containing Phosphoric Acid	24.52 per cent.
Containing Bone Phosphate of Lime	53.52 per cent.
Insoluble Matter	2 51 per cent.

This is the BEST SAMPLE OF BONE DUST I CAN FIND IN THE MARKET, and call your especial attention to the LARGE PERCENTAGES OF VALUABLE MATERIAL for the improvement of the soil, and to the SMALL PERCENTAGES of moisture and insoluble matter

Respectfully, etc., P. B. WILSON, *Analytical and Consulting Chemist.*

PREPARED FOR DRILLING, AND PACKED IN BAGS, 167 LBS. EACH, AT $42 PER TON. DISSOLVED OR VITRIOLIZED BONE, $43 PER TON. BONE ASH, GROUND AND DISSOLVED, $42 AND $48 PER TON. FARMERS' SUPPLIES.

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All Kinds of Fertilizers, &c.

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IMPROVED LIVE STOCK,

CATTLE, HORSES, SHEEP, SWINE and POULTRY. In this Department we buy only from breeders of established reputation of the several kinds, and cannot undertake to procure ordinary farm stock, such as draft horses, milch cows, &c In this vicinity great attention is paid to some particular breeds of stock, and specimens can be had here which are nowhere to be surpassed.

As in all transactions we operate for the purchaser, our terms must necessarily be

CASH (or its equivalent.)

Sam'l Sands & Son,

EDITORS AND PUBLISHERS AMERICAN FARMER,

No. 9 North St., Baltimore, Md.

THE

AMERICAN FARMER.

"O FORTUNATOS NIMIUM SUA SI BONA NORINT
"AGRICOLAS." . . . . . *Virg.*

PUBLISHED BY SAML. SANDS & SON, BALTIMORE, MD.

VOL. V.—No. 7.] JULY, 1876. [NEW SERIES.

PHOSPHORIC ACID:

Its form in Nature; its tendency to revert; and the use of Super-phosphate in conjunction with Lime.

Prof. Pendleton, of the Agricultural College of Ga., in one of a series of articles on Fertilizers written for *The Plantation*, said that while all other substances generally exist in the soil in soluble and assimilable conditions, and when once available as plant-food are not easily thrown back into an insoluble form, the reverse is true of phosphoric acid, which is hard to make soluble, but easily becomes insoluble from chemical actions taking place in the soil. Potash, soda, magnesia, sulphuric acid, and chlorine, exist in the soil in forms which are more or less soluble; and while lime is less so than these, this is compensated by its abundance.

Phosphoric acid, he continues, seems to be an exception to the general rule governing other substances, in that it occurs in Nature almost exclusively in forms not assimilable by plants; and even when taken up by them and converted into organized beings, whether animal or vegetable, the same insoluble forms are assumed. Thus the bones of all animals and the seeds of all plants have, in large proportions, phosphoric acid combined as the insoluble tri-basic or bone phosphate of lime, which, in that form, would remain through all time unappropriated by plants, unless changed by slow and uncertain chemical actions in the soil.

And when thus changed and rendered soluble by being changed from a neutral phosphate to a bi-phosphate, it is liable at any time to be again reduced unless appropriated very soon by growing plants. Thus, by a wise provision of Providence, that substance in Nature the sparsest, and most often required as plant-food, is locked up in insoluble combinations to save it from a waste which would constantly transpire if, like other substances, it remained in a soluble condition in the soil.

The unadulterated bone phosphate of lime (3 CaO, PO5,) the common form in which lime and phosphoric acid unite in Nature, if applied as a fertilizer (say to cotton) in a soil with but little organic matter (humus,) would produce scarcely anything more than the soil without it. If, however, ammonia in some form be combined with it, or chloride of sodium (common salt,) there would be a very sensible increase of production, not so much from the intrinsic virtue of the ammonia and the salt, as the fact that these substances render the insoluble phosphate of lime soluble, by changing it to a bi- or super-phosphate.

The same effect would be produced in a soil abounding in organic matter. As in that case the carbonic acid constantly escaping from the decaying humus would have a similar effect upon the bone phosphate, and as far as it came in contact with it, render it fit for plant-food. The same is true of other vegetable acids escaping from decomposed organic matter in the soil.

Other bases, such as iron, magnesia, soda, etc., will also unite with free phosphoric acid when it finds it in the soil, or take it from a bi-phosphate, and thus render it insoluble. In the same way some super-phosphates are reduced several per centum after being made soluble from having such bases in them. Thus a super-phosphate made of Navassa guano will lose several per cent. by the subsequent formation of phosphate of iron, because this metal exists in appreciable quantities in this phosphate.

Some chemists contend, however, that such a reduction does not materially injure the super-phosphate; that it is only thrown back into a bi-phosphate of lime, which is somewhat more soluble than the tri-calcic phosphate. While admitting that this is an open question, I am free to confess that, as far as my experiments go in the matter, this position is not tenable. I have now on hand several experiments which will throw light upon this interesting question, when the results are fully known.

With reference to the effect of caustic lime, and the reduction of the bi-phosphate to the tri-calcic phosphate, there can be no question.—Liebig, long since, announced that such would be the effect in applying super-phosphates to lime soils, which has, however, been denied by other chemists. Even Gilbert and Lawes have advocated such a combination. With a view of

ascertaining the effect produced on super-phosphate by lime, I took fifty-three and one-third ounces of a high-graded super-phosphate (having thirty-two per cent. of soluble phosphate of lime) and mixed it with an equal quantity of partially air-slaked lime, adding water sufficient to make the whole into a thick paste. After drying and pulverizing, I applied it to one row of cotton, seventy yards long. Another row, by its side, I fertilized with fifty-three and one-third ounces of lime by itself; and still another with fifty-three and one-third ounces of the super-phosphate, while on each side were rows containing no fertilizer at all. The results of two pickings show as follows:

Super-phosphate	185	ounces.
Lime and Super-phosphate	154	"
Lime alone	137	"
Average of nothing rows	124	"

Now, it will be perceived that, while the lime increased the product over the nothing rows thirteen ounces, it injured the super-phosphate with which it was applied thirty-one ounces. In other words, the super-phosphate alone made forty-eight ounces more than the lime, while the lime added to it made only seventeen ounces more than the lime alone.

The soil in which this experiment was made had a good supply of organic matter, and the effect produced by the lime was doubtless owing to that fact. The bad effect produced on the super-phosphate was by reducing it from a soluble bi-phosphate to an insoluble tri-basic phosphate of lime.

J. B. Lawes, of England, on the Ammonia Question.

We find in the *Scientific Farmer* a letter from this distinguished English farmer, from which we make the following extract:

Some of the experiments on Indian corn given by you are of great interest to me; those given by the New Jersey State Board of Agriculture in 1875 are not satisfactory. Land which yields 85 bushels without manure is too fertile to be the subject of experiment; it is comparatively unimportant to farmers that manures should be used to increase the produce from 85 to 100 bushels, as it is probable that the unmanured crop would be the most profitable. The real interest in the question is how to increase the crop from 20 to 30 bushels to the maximum crop which can be grown with profit.

Professor Stockbridge's experiments on Indian corn indicate that almost the whole of the nitrogen supplied in the manure was recovered in the produce. In our experiments on grass, wheat, oats and barley, we do not recover much more than one-half the amount supplied, in the first crop,—measuring the increase from the produce obtained by a manure composed of phosphate and alkalies without nitrogen. I think it is almost certain that a much larger percentage of nitrogen would be recovered in Indian corn than in crops which are sown earlier in the year, and certainly there would be less chance of loss by drainage. Still, your agriculturists must not expect to have an increase equivalent to the amount of nitrogen they supply in manure.

Looking at the vast importance of nitrogen in the growth of the cereal crops, and also its great cost, there is no question which possesses the same amount of interest. Four substances yielding nitrogen have been made the subject of careful experiment at Rothamstead for 30 to 40 years: farm-yard dung, rape cake, salts of ammonia, and nitrate of soda. I need hardly say that the nitrogen in these substances exists in many different forms. Of that in dung a considerable proportion is very slowly soluble; while that in nitrate of soda is not only perfectly soluble, but is washed very rapidly into the sub-soil and beyond the reach of the roots of the plant.

In spite of the rapid loss it is by no means certain whether we do not recover as much nitrogen in our crops from the nitrate of soda as from any of the other substances. Owing to the extreme slowness in which dung decomposes, a very long period must elapse before its influence upon crops ceases, and in the experiments on pastures, the dung which we applied for the last time in 1863 still produces some slight effect.

It is a matter of great surprise to me that nitrate of soda is so neglected in the States. I feel confident that when used with super-phosphate of lime, its action on Indian corn would be very great. The importance given to potash by your writers, as beyond all things necessary in artificial manures, does not altogether accord with my views. Then one of your writers calls the sugar beet a potash plant. The sugar beet has been under experiment here for some years, and I have quite recently sent to one of the French agricultural journals a table of the results for the last 5 years. The result is this: a very liberal supply of potash and other alkalies, with superphospate of lime, produced less than 6 tons of roots per acre, and 16 per cent. of sugar. The same minerals, with nitric acid in nitrate of soda, or with salts of ammonia, produced 20 to 25 tons of beet roots, and 2 tons of sugar per acre.

The Germans are purchasing ammonia very largely in our markets for the sugar beet, and sending us potash salts, which they cannot use, and which we do not want. J. B. LAWES.

Rothamstead.

Fish Guano.

In the June No of the *Farmer* we published an article on this subject, from Prof. Goessman. The *Scientific Farmer*, from which we copied, in alluding to the subject, corrects an error in the "statement;" instead of "nearly $30 worth," as remarked in one of the paragraphs, it should read as so many pounds. A correspondent of that paper remarks that—

The more economical method of rendering the nutriment portion of this cheap material available as plant food is to compost it in autumn, winter, or early spring. This fish refuse being made up of rather unstable compounds, is readily decomposed in a heating compost; and in the process the valuable parts are changed into forms suitable for use by the plant. The nitro-

gen of the albumen of the flesh is changed to ammonia salts, (phosphate and sulphate of ammonia chiefly,) the phosphorous of the flesh to phosphoric acid, and the insoluble phosphoric acid of the phosphate of lime of the bones and scales to a soluble form.

The great drawback to the efficiency of fish manure as a general fertilizer, is its total lack of potash: a substance much needed on most soils of New England and the Middle States especially.

In our own farming this year, we have used four tons of fish pomace, composted for a few weeks for decomposition, (a rather short time allowance,) estimating the composition at 4 to 6 per cent. of nitrogen, and 3 to 4 per cent. of phosphoric acid, and supplying the deficiency of potash with wood ashes and potash salts (sulphate for roots, and muriate for cereals.)

On the average, about 200 lbs. of potash salts, of 40 to 50 per cent. actual potash, to a ton of crude fish refuse, is the proper proportion.

Tobacco Cultivation in the United States.

Prof. Levi Stockbridge, in the *Scientific Farmer*, estimates that about 500,000 acres of the best land of the country are cropped with the weed annually, yielding a return of about $40,000,000. He says that there are things of much moment relating to the cultivation, &c.; but only one to which he will now call attention, but it is one which appears to have a marked influence on the quality of the product: it is the distance apart of setting the plants; and he alludes to the practice in Connecticut, Massachusetts and Vermont.

Connecticut seed-leaf, (owing, perhaps, to our soil and climate,) has possessed some peculiar characteristics, qualities, and adaptations, and in consequence has commanded superior prices; but within the last few years there has been quite a general complaint that its quality has depreciated. It is said, and probably with truth, that it lacks the essential oils, that it is not of uniform color, and the leaf has lost much of its former fineness and elasticity. The cause is assumed to be too long cultivation on the same land, and too free use of commercial fertilizers to increase its growth. It is more than doubtful if this is the real or only cause of the depreciation, for as poor tobacco as any is produced on new land, and where no commercial fertilizers, but large quantities of yard manure only have been used.—During these years of depreciation, however, but especially since the use of the ridgers in preparing the land, farmers have been placing their plants thicker and thicker, until now, instead of putting them forty by thirty inches apart, they, in many cases, crowd them to twenty by thirty inches; and as the leaf develops, the field becomes a dense mass of foliage. The soil is shaded from the sun's rays, and made comparatively cold.—Many of the leaves are kept in a dense shade, and deprived of the essential influence of sunlight. Much of the peculiar quality of tobacco is in its oils and acids, which make its aroma; these are obtained principally from the air, and developed by the influence of the sun's rays.—Tobacco, to be of high quality, must be ripe, but if grown in dense shade it will not really ripen at all, and will compare with a ripened leaf as an apple grown in the deep shade compares with one perfected in the clear sunlight. These facts are sufficient reason for the poor quality of much of the tobacco of recent years, though other causes may have aided in the result. The soil being deprived of the direct rays of the sun the last of August and first of September, the roots of the plant become inactive, the tobacco comes to a standstill, and the frost being near at hand which will destroy it, the farmer is compelled to the harvest, complaining it has not ripened so much in a fortnight as it ought to in three days. If for no reason but the experiment, let the tobacco planter put his plants no nearer than thirty by forty inches, and mark the result in the rapidity of ripening and quality of the product, and I predict that other things being equal he will be the gainer, and likely to repeat the trial.

Horse and Cattle Show at the Centennial.

The first display will be during the two weeks beginning September 1st, and consist of horses. For these, 740 stalls, each 14x14 feet, will be provided, and some of the most noted horses of the country are entered. The Canadian Commissioners have made requisition for 300 stalls for stock, and the British Commissioners in London have been receiving applications up to a late date. The regulation precluding the importation of foreign animals has been lately modified by the Secretary of the Treasury, so as to permit the introduction of those intended for exhibition or breeding purposes, provided they are certified, by a competent veterinary surgeon, to be free from contagious diseases. Messrs. P. Wright & Sons propose to send from Liverpool a special steamship to bring cattle, which shall run slowly and turn tail to the storms, so as to promote the comfort and well-being of the animals.

A bench show of sporting and non-sporting dogs, beginning September 1st and continuing eight days, will be held.

Animals are divided into classes, and in each class (sweepstakes excepted) breed will compete with breed. For instance, bulls of one year old constitute a class; Devon yearlings will compete with Devon yearlings, Short-horns with Short-horns, and so with each breed.

There will be three prizes (1st, 2d and 3d) for each breed; so that, as there are at least nine distinct breeds, viz: Short-horn, Devon, Holstein, Hereford, Jersey, Guernsey, Brittany, Kerry, and Ayrshire, there will be 27 prizes for yearling bulls. Two-year-old bulls constitute another class, and three-year-olds and over, another class; so that, for bulls alone, there will be 81 prizes. Cattle will compete as herds—breeds competing with breeds—they constituting one class. Of cows there will be four classes, classed according to age; of working steers and fat oxen, there are five classes. There will be, also, sweepstake prizes for the best bull, and sweepstake prizes for the best cow, of any breed. Of horses, for breeding, there are 16 classes; for speed, 4 classes; as walkers 1 class, and as matched teams 5 classes. For sheep in

pens, 1 class; as rams, 2 classes; rams as sweepstakes, 3 classes; ewes, 2 classes; ewes as sweepstakes, 3 classes; as fat animals, 2 classes. Goats are classified the same as sheep. Asses for breeding have 4 classes. Swine have 12 classes; dogs, 10 classes; and poultry, 3 classes. Ninety-five full sets of prizes are thus offered, supposing that but one breed of each species of live stock was placed on exhibition. This display being open not only to all the States but equally so to all the world, it is easy to perceive that the list of prizes here presented, when multiplied by the variety of breeds that will be displayed by our own people alone, will run high up into the thousands.

An onerous work is before the Bureau of Agriculture of the International Exhibition, especially as its officers are determined to leave nothing undone to make the Live Stock Display the crowning feature of the Agricultural Exhibition. In this they have the hearty support of leading cattle-men; and the prizes offered by outsiders, which will be in addition to the awards made by the U. S. Centennial Commission, will develop lively competition among breeders. For instance, the American Jersey Cattle Club, at their late annual meeting, passed a resolution offering $1,000 in five special prizes for this race of cattle. The prizes are as follows:

$250 for best Jersey cow.
100 " 2d best Jersey cow.
250 " best Jersey bull.
100 " 2d best Jersey bull.
300 " best Jersey herd.

Annexed is a list of the dates for the Special Displays of

LIVE STOCK:

Horses,	September 1st to 14th.
Dogs,	September 1st to 8th.
Neat Cattle,	September 21st to October 4th.
Sheep,	October 10th to 18th.
Swine,	October 10th to 18th.
Poultry,	October 27th to November 6th.

The 17-Year Locust.

Prof. C. V. Riley, State Entomologist of Missouri, in his chronological history of this insect, predicts that in the year 1876, and at intervals of seventeen years thereafter, they will in all probability appear in parts of North Carolina, Virginia, Maryland, Illinois, and Indiana. According to Dr. Smith they appeared from Raleigh, N. C., to near Petersburg, Va., in 1842 and 1859; in Rowan, Davie, Cabarras, and Iredell counties, in the same State, in 1835, 1842 and 1859; in the valley of Virginia as far as the Blue Ridge on the east, the Potomac river on the north, the Tennessee and North Carolina lines on the south, and for several counties west, in 1808, 1842 and 1859; in the south part of St. Mary's county, Maryland, dividing the county about midway east and west, in 1825, 1842 and 1859.

The Professor would be glad to be informed whether the present year will verify the correctness of his predictions; and if any one of our readers in the localities named will advise him at St. Louis, Mo., or ourselves, of the appearance of this insect, they will be contributing to a correct knowledge of its history.

Correspondence.

The Gunpowder Farmers' Club.

Messrs. Editors American Farmer:

The last meeting of the Gunpowder Agricultural Club was held June 3d, at the residence of Dickinson Gorsuch,—S. M. Price, foreman. The subject discussed was the cultivation of corn *for profit*. N. R. Miles.—He would take a good clover or blue-grass sod; plow well in the fall with a three-horse plow, and during the winter apply all the manure he could. In the spring he would lighten up with the large cultivator, and, taking one season with another, plant about the 10th or 15th of May. It is not a good plan to put in too large a breadth, as it is apt to be neglected. A smaller breadth, with proper attention, saves labor and pays better. He would plant 3½ feet each way, 2 stalks to the hill. For the first working he would use the Davis drag, and go as close to the corn as he could. He sees that some persons go once in a row at first working; he does not approve of it.

S. M. Price.—Like N. R. Miles, he thinks the best way to grow most corn at least expense is to take sod ground—with them it is always ground that has been manured a year or six months before plowing, applied on the sod. He would not apply after plowing, on account of running out the ground, and packing it too much. He wants to put the ground in the best kind of order; lays off 3½ feet both ways, leaving two stalks to the hill. *Q.*—Do you plow in the fall under all circumstances? *A.*—Yes. It is not best for the crop, though there are many reasons to justify it. It is much less labor for the horses, requires less labor to put in order in the spring, and diminishes the risk of injury from worms. He had used no commercial fertilizers on corn.

I. M. Price.—Heavy clay soil he would plow in the fall; lighter soils are better plowed in the spring, that is it is better for the land. Thinks we should manure well to make all of our crops profitable. Thorough cultivation before planting is far preferable to cultivating afterwards. Lays off 3½ feet square. He would not plant before the 10th May. He does not object to early planting. A neighbor of his planted when the ground was cold; he never knew corn to come up better.

B. McLean Hardesty.—If sod ground is intended for corn he plows in the fall—does so from considerations of convenience, and not that he believes fall plowing of any benefit to the crop. Lays off 3½ feet each way, or 3x4. He has applied manure on sod land for corn before plowing, and in the winter and spring after plowing, the latter giving the best result. He contends there is a loss of ammonia from applying on the sod a season in advance—using plaster at the time of applying might arrest it. He had not tried. He usually applies hen manure to corn, adulterating with six or eight times its bulk of rotten sod. When he desires to reduce the hen manure, he moistens it, which causes fermentation. By repeated turning the fermentation ceases, and pulverization is accomplished. He uses plaster while the fermentation is going on, to retain the ammonia. For working, uses

first the smoothing harrow, next Davis drag, next smoothing harrow, if not too high, and then the double shovel.

Jos Bosley.—If he had sod land for corn he would like it manured—spring plowing is not his preference—it makes the cultivation easier. Has always been afraid to risk spring plowing, on account of the worms. He is in favor of working well before planting; doesn't want the sod to turn, so he would not go very deep. Spring-plowed ground is much lighter to work in a wet season; it carries the water off better. It is profitable to use a trifle of a good fertilizer on late planting. He had not incurred heavy expenses in preparing premium acres; never over $4 per acre for commercial fertilizers. He had applied 100 lbs. of plaster per acre just previous to tasseling. *Q.*—In what respect does plaster benefit the crop? *A.*—It is supposed to create moisture; applies broadcast. *Q.*—Is it pretty hard to throw it? *A.*—It was last year. He throws to two rows at a time, and with a view to reaching the roots. Gives the first working with the smoothing harrow before the corn comes up; then the cultivator. Approves of rolling all spring-plowed ground.

Joshua M. Gorsuch.—He would aim for a good bit of sod ground, and manure it. For ordinary crops of corn he would plant 3½ feet by 3 feet 8 inches He allows this difference, the first way laid off, for irregular dropping. For working, experience teaches that the cultivator appears to do as much justice as any other implement. If the ground is in good order, repeats the working with it the opposite way. Then two workings with the double shovel constitute his cultivation. He seldom resorts to the fifth working. He prefers spring plowing, worms or no worms; he has been eaten up with them time and again, but yet prefers spring plowing. Last year he tried both. Where he expected the corn on fall plowing to be the best, it was worst—the ground gets too light. The grand secret of success with spring plowing is not to break the ground unless it is in proper condition. Most people get too much excited from the winter's rest, and rush to work without a prudent regard to consequences. He has always had to contend against wet plowing.

S. M. Price said he always looked on the deleterious results of plowing too wet in the spring as one great argument in favor of fall plowing.

Dickinson Gorsuch said the eagerness of people to get to work in the spring is often fatal to land.

A. C. Scott would take a sod three or four years old. He would rather plow early in the spring. If he could, he would manure after plowing. Finds he gets a better return from surface application, even when coarse manure and less of it is applied. He has used some commercial fertilizers and some of his own make. Last year he thought "Whitelock" paid better than his own. He has changed his plan of manipulating hen manure. Heretofore he has been mixing it with leached ashes. This year he applied the ashes by themselves and adulterated the hen manure with rich earth and plaster, viz: Two parts rich earth, one of hen manure and one of plaster. The hen manure he pulverized with a flail. This year he gave the first working with the drag; heretofore, with the harrow. He likes to work once with the single shovel and level with the cultivator.

Ed. Scott thinks we had the matter of growing most corn at least expense tested last year. It was shown very plainly in the result obtained by Jos. Bosley. The average of his general crop was 16½ barrels. By the application of $4 worth of commercial fertilizers he had increased the yield of 5 acres an average of 8 barrels. [*Note.*—Mr. Bosley stated that he did not consider the 5 acres an average of the balance which was sod. The 5 acres were a repeat. Compensation was made by a coat of barn-yard manure.] He did not consider there was any advantage in working inferior land in corn. The benefit of fall plowing arises from the action of frost in pulverizing; lumpy, cloddy ground possesses insufficient nourishment for corn roots. Like S. M. Price, he thinks land ought to be made good on the sod by the application of lime and manure. Ground should not be run over after it is plowed to put them on. He plants as soon as the ground can be gotten in order in the spring. Gives a chance to get it well worked up before harvest. *Q.*—Is there such a thing as early-planted corn rotting in the ground from cold weather? *A.*—He has known it to rot, especially when we used to wet and roll in plaster.

Ed. H. Matthews.—He would take a sod of as long standing as he could get—say four to five years; plow in the fall—all spring plowing bakes; corn comes up badly. There is no trouble getting fall-plowed ground in order before planting. He would manure one year ahead. Last year manure on test was applied on top,—had trouble with it all the season. He would use a little fertilizer to start the corn. Would use the Woolsey harrow for the first working, and run as close to the corn as possible; next the Davis drag; then Knight's double shovel.

Dickinson Gorsuch.—He likes a sod,—clover or natural grass; if latter, would prefer it of five to seven years standing. He does not know which is the better. If we can turn clover down it gives us nitrogen, but makes the land too light, and as a consequence it washes. Prefers fall plowing on account of the liability to injury arising from plowing too wet in the spring. We can get more benefit from manure by applying it on the surface. We are told that plants feed at the surface of the ground. Why, then, cover the manure with several inches of soil? He manures generally for grass, not for corn. His preparation of fall-plowed ground consists of two harrowings and a dragging; or two draggings, if required. This season part of his corn had six workings previous to planting. For planting, he prefers the drill on hill-sides, to prevent wash. The drill is likewise convenient for applying fertilizers. Until this year he has been working with the smoothing harrow first. This year he used the Woolsey,—the lighter on hilly, the heavier on level land, each once in a row. The Woolsey harrow is a valuable instrument for corn-working. Our thanks are due Saml. M. Price for introducing it among us. The smoothing harrow sweeps over the ground much more rapidly. After the Woolsey he uses the Davis drag. He does not expect to put the shovel plow into his corn at all this year, on account of its lacerating the roots. [*Note.*—Jno.

D. Matthews claimed that this laceration is an advantage, as it causes such severed long roots to send out small lateral fibres, which, by their great multiplicity, increase the feeding capacity of the stalk, and hence add to its grain-producing power.]

Jno. D. Matthews—The preferable treatment for his soil is to lime the fall or winter after he takes off wheat. He has before spoken in the club of a field that he mowed six years; dressing it then with lime, he mowed it three years longer. He would apply manure to the thinnest portions of pasture lands; not to mowing fields. Such application increases vegetable growth, stiffens and deepens the soil and is an admirable preparatory step towards enlarging the corn crop. A few years ago he had several cords of manure hauled out on an old pasture lot which was almost bare. It stimulated the vegetable growth remarkably and afforded plant-food for the succeeding crop. He is reaping the advantage of that dressing of manure still. Flat lands he would plow in the fall, hilly in the spring. Ground should be brought to a fine tilth; no nutriment for the plant in cloddy soil. Prefers plowing to a depth of from 8 to 10 inches. Gives plenty of sun and air. Uses Whitelock, at the rate of 150 lbs. per acre. Last year an application of that amount gave him an increase of 5 bbls. For cultivating, he uses the smoothing harrow immediately after planting—levels and prevents formation of a crust.

On his prize acre he is using Knight's double shovel, which is the best implement he has ever used. The main point in raising a corn crop is to get in advance a heavy growth of vegetable matter. T. G.

Baltimore Co., Md., June 20th, 1876.

The True Theory of Farming—XI.

Fineness and Thorough Dissemination of all Manures Necessary for the Best Results.

Editors American Farmer:

Notwithstanding the rambling, discordant teaching of the books, wherein, for the most part, learning, servility and superstition are linked together, it is plain that manures are presently and permanently valuable only in proportion to their degree of fineness and solubility; and worthless in a ratio with their coarseness and insolubility.

A thorough intermingling, so as to present them to all the absorptive parts of the roots of plants in the absence of *fineness and solubility*, is utterly impossible.

Happily for mankind these conditions not only render them available to the first crop, but establish them more *permanently in the soil.* For, just in proportion to their fineness and solubility, and therefore their facility for union with the juices of plant roots, and absorption into the same, is their capacity to *chemically unite* with the soil.

So the peculiar properties that render them *presently* valuable make them *permanently* useful.

Writers and speakers, who jump at conclusions, or float on popular error, have not been slow in the propagation of opinions precisely the reverse, and have complacently received public plaudits for ingenious explanations of how the soluble condition renders them more liable to be washed out. Neither ignorance nor malevolence could inspire a doctrine more ruinous to the public interest.

It is gratifying to the public ear to be told that what is cheapest is best and most durable. When the air is redolent with grateful sounds, patience rebels against discordant notes of approaching calamities, escape from which involves much labor, and learning, and skill, and expense.

The fortune-teller draws the welcome fee, and complacent approval, by pictures of present hopes, instead of impending calamities.

The sturdy farmers are not exempt from the infirmity that renders others of the human family liable to humbuggery and vampirism. Like other people they believe what is easiest, and ignore what is hardest to understand and accomplish, although the law of labor, mental as well as physical, is stamped on every created thing. Especially in husbandry is the self-enforcing element of the law of labor manifest on every hand.

The greatest amount of labor, skilfully directed in the preparation of manures and the soil, and the judicious selection of the best labor-saving implements, have always resulted in the greatest and most permanent benefits.

The doctrine of applying coarse and insoluble manures has the advantage over truth in the facility of its performance, and is presented by its advocates as the means of greater durability; that is, they would have us believe that a mere *mechanical mixture* of foreign bodies with the soil will be retained with a stronger affinity and greater force than a *chemical combination.*

Enough has already been said to refute this idea in the minds of attentive readers, and we will pass to the *condition in reference to fineness and solubility* to which the manure should be brought before its introduction into the soil, and herein of the practice of throwing manures loosely about in lumps and streaks.

Fineness and perfect intermingling have already been urged in these papers in reference to placing it in contact with all parts of the absorptive roots of plants. All parts of a plant are absorptive in the first stage of life.

But for the brief period in which the plant is providing itself with the organs necessary for assimilation of general food, it seems to have been established by the great Liebig that it lives on carbonic acid in the soil.

For a short period after this stage is passed, all parts of the roots seem to be capable of absorbing water impregnated with general food, and the developed organs digest and assimilate it.

Ere long, those parts of the roots nearest the stem, having sent out radicles in search of food, cease to perform the function of absorption, but serve to support the plant in an upright position and to convey the food from the feeders (absorptive appendages) to the body, which in turn sends this, the soil-food dissolved in water of the soil, to the leaves, where it is combined with the atmospheric food absorbed by the leaves.

This combination or elaboration is performed by the organs of the leaves. The water that served as the vehicle for carrying the food up, is here, in this elaboration or digestion, for the most part exhaled, and a fluid called sap is passed downwards, during which the digestible

parts are principally assimilated and the rest excreted generally at the roots.

The process of final assimilation and excretion is analogous to that in animals. But plants seem to have no receptacle or stomach for food in the solid form. They are therefore more delicate, and are to be fed with more constant care and caution, and will perish sooner by starvation than animals.

They possess one great advantage over animals, in that they live almost entirely on the atmosphere, which is ever wafting the food to them. But the little soil food required, in general only from one to five pounds in a hundred of their weight, is as indispensable as the greater bulk from the air.

To obtain this soil-food, the plant is infinitely more perplexed than the animal, for the food must exist in soluble form, in contact with the special parts of the roots furnished with mouths, (to speak by analogy,) and, unlike animals, they possess no power of locomotion beyond a limited radius. They search eargerly within this scope, and if the little soil-food required be not in reach in soluble form, although abounding but an inch away, they perish.

If sufficient food be present to form the necessary organs, the plant sends out feeders in all directions so long as they can find subsistence. But these will starve on a sterile road, and stop ere they go the normal distance. Repeated ill-requited efforts in different directions result in exhaustion of the vital powers and disease in early life, and ere long develop the phenomenon of untimely feeble efforts towards propagation, (the final destiny of the vital forces of plants,) discovered in premature flowers, abortive ovarious formation, &c.

Herein is the importance of a thoroughly-tilled and fully supplied soil with every substance of plant-food in every atom of soil.

The husbandman cannot make a tree out of a stalk of corn or wheat; but in a propitious clime he can produce the utmost capable development in the different organs,—as the roots, stems, leaves, and seeds of agricultural plants. I cannot forego here, again, to remark, that just in proportion as this is accomplished for the successive crops, will be the establishment of permanent fertility. The very means that make the best crops prolong and increase fertility.

The feeding-roots of plants will penetrate further, and enlarge their scope for foraging, just in proportion to the thoroughness of drainage, of tillage, and the intermingling of soluble substances in every atom of space.

These conditions not only promote the growth of the present crop, but bring about the unceasing change that enables the constituents of soil to manufacture soluble out of insoluble compounds. The activity itself implies solubility to the vital forces of the roots.

A soluble substance, the instant it is mingled in a state of fineness in a properly-conditioned soil, commences the round of changes by its union with matters of the soil, which union, in turn, is broken up by other newly-developed chemical influences, developing still others, to infinity, so long as the soil is properly tilled. Although this continual evolution is necessary to the growth of plants, we are told it militates against permanent fertilities.

In the same sense it is destructive of permanent fertility to drain a soil saturated with water; yet although this soil should possess the elements of the most fertile soil on the globe, it could not produce wheat or corn. Barren, in this condition, it is said to be exhausted by tillage. Exhausted of what? Certainly not of power to grow plants, for it possessed none, until created by the very act that is said to exhaust it.

In reference to active and so-called "stimulating" fertilizers and the ascribed results of exhausting the soil, take a common example—sulphate of lime—(plaster.) This, when applied, is broken up in the soil by the union of carbonate of ammonia with its sulphuric acid, resulting in the formation of sulphate of ammonia and carbonate of lime.

Here volatile ammonia, which is fleeting as the winds, is *fixed* by its conversion into a non-volatile substance, and becomes an integral part of the soil; and this sulphate of ammonia and carbonate of lime are both indispensable to the life of plants, and both in a condition available.

Yet plaster is classed with the "stimulating" fertilizers, and it is, in fact, just as stimulating as any. It is amusing to see the array of learning summed up by Johnson (agricultural chemist) when he presents us briefly with the opinions of a dozen learned writers as to its inscrutable action. Still, at that time, as now, it was well known to be choice and indispensable food in itself.

But how could a spoonful of it have so charming an effect on a stalk of corn? This they thought best to account for in learned epithets, and vague hints, conjectures and surmises.

The great Liebig is represented as having maintained that its *only* office was to *fix* volatile ammonia.

How easy a little less learning might have taken a practical view of it, and ascribed to it the virtues common to all manures, of feeding the plants and preparing other food in the immediate vicinity of the roots. But this is entirely too plain and tangible, and, moreover, it appeared too insignificant in quantity to cut any figure in feeding the plant.

Yet, if the stalk of corn were burnt, it would be found that it had not used more lime and sulphuric acid than existed in the small dose administered; to say nothing of the ammonia, and, perhaps, other substances rendered available by its known action and influence on the soil.

If a stalk of corn does not need more than the amount of lime, &c., contained in the plaster administered, is it not reasonable to suppose that the quantity administered was enough, at least to make up any deficiency of the same substances in the soil in contact with the roots?

Substances, in finely divided particles and in a soluble state, are more likely to be assimilated, merged, and retained in the soil than in coarser or insoluble condition.

Suppose we advance a step further and claim they would be more permanently combined with the soil, if applied, not only in the finest state of division and easy solubility, but *already in solution*. Take urine, for instance, and sprinkle on a soil in proper condition of tillage. Then take

a portion and evaporate its water, under such conditions as to precipitate the plant food, and deposit it in fine powder, and spread this, the plant-food of the urine, on a like soil.

Is it not probable that the liquid application would be more intimately mingled, and more thoroughly combined with the atoms of soil, than even this fine powder.

If anybody doubts that the elements of liquid manure will be assimilated and held in close embrace by the soil, while its water may pass into the subsoil or away into the drains, or by evaporation into the air, let him try an experiment.

Place a heap of manure exposed to rains on a soil in such a way that the water from it will pass through a soil not already *saturated* with the constituents of the manure, and be caught in a clean vat. It will be found that, for a time, the water will be filtered and deprived of its plant-food in its passage through the soil, and appear pure in the vat.

But when the soil is completely saturated with the impurities (plant-food) of the water, it will become *foul* in the vat.

So, then, we may alike deprecate the use of liquid or any form of manure as wasteful in a soil full of the same manure. About this there is hardly occasion for contention.

We daily purify waters by their passage through charcoal, sand, &c., on the same principle; the fertilizing elements having left the water and united with the filtering substances.

If this be true, where is the foundation for the tirade against soluble fertilizers? As fineness is a chief element of solubility, can excuse be found for applying manures in a coarse condition, here and there, in the soil, instead of its even dissemination in a state of the finest subdivision?

The earth presents examples of soils well supplied with soluble food in an exceedingly finely divided state, responding to tillage in the largest crops for a thousand years without apparent diminution. If the same had existed in insoluble combinations, instead of a thousand ample crops the labor had been in vain.

If farmers would seize and realize the fact that plants have no power to acquire food except in contact, and in the finest possible condition, they would be overwhelmed in contemplation of the loss and waste incurred by throwing lime about in lumps, streaks, and cakes, to find the plants.

They administer food to their half-grown children in suitable condition for digestion. But the tender infant plant, as feeble in its digestive organs as new-born babes, and far more so than adolescents, is vainly expected to hunt up, absorb and assimilate coarse insoluble substances.

If a farmer is asked how he limed his soil, he answers: 40 or 50 bushels per acre. If asked how much per cubic foot or inch, he could furnish no information. Yet its value depends upon how much is applied to each foot or inch, and not to each acre.

An acre a foot deep contains 43,560 cubic feet of soil. About 50 bushels,—say 2,722 lbs.,—evenly distributed, supplies every foot with one ounce of lime. The weight of soil is about 80 lbs., or 1,280 ounces, per cubic foot. So there is 1 ounce of lime for every 1,280 ounces of soil; or 1 atom of lime for every 1,280 atoms of soil. Now, if some spots are dosed with a lump or cake weighing half a pound, (8 ounces,) this is at the rate of 350 bushels per acre—seven times more than intended; and if others should get a pound lump or cake, it is more than fifteen times the intended quantity, and these spots take the lime intended for seven or fifteen times the space, and leaves that much with no lime; or a greater space with infinitely less than was intended; some *over-limed*, and ruined for a long time, and much more *not limed* at all.

If it does not respond, as it would have done had it been evenly distributed, the lime is blamed.

I will venture to say that this is the result of nine-tenths of the applications of lime, and that there is not one foot of soil in one hundred of the 43,560 feet that is not over-limed, under-limed, or not limed at all.

When farmers begin to talk about how much lime and other fertilizers they apply per *foot*, farming will be on better *footing*. When they talk more about *feeding the plants* and less about the quantity of manures applied *per acre*, the plants will be better fed.

When they talk and *think* about feeding the plants, as they do about feeding their families and their live stock, they will not be afraid of *exhausting* the soil by *feeding* the plants.

When they begin to talk and think for themselves they will not be the dupes of the ignorance of others.

When they subtract the loss sustained by diminution in crops and value of land from misguided, sloven, and uncertain work, they will talk less of the expense of doing things right.

When they begin to think for themselves, they will be as slow to believe that one, two or three years is required for the action of lime in the *soil*, as that this long period is required for its action on sand and water in the *mortar-bed*.

L. H. McGINNIS.

The Tenant System As It Is and As It Ought To Be.

Editors American Farmer:

Your correspondent C. very properly agitates the question of tenant farming. The manner in which farms are rented out in our country is a very serious drawback to good farming, and a great temptation to tenants whose ideas of right and wrong are not very firmly established. Wherever a land-owner rents his farm out for the short term of one or two years, he may be assured that in course of time his farm will be run down, and fencing and improvements neglected. The tenant, very naturally, tries to get as much out of the soil as possible, and to expend as little as possible in attaining his point. There is no inducement for him to act otherwise.

On the other side, if tenant farming were established on the principle that the improvement of the soil would be a benefit to the tenant as well as the land-owner, this mode of farming would become most beneficial to both parties. This result can only be obtained in long leases, for the term of from 10 to 15 years. Then the tenant will reap the full benefit of any improvement he may make. It will be the strongest inducement for him to improve the soil and keep up the improvements on the farm.

The proprietor will after the expiration of the lease, have a well-improved farm which he easily can rent to advantage. In such leases it ought to be enjoined on the tenant not to sell forage and manure, and to keep an appropriate number of stock.

Although this system of leasing would be a mutual benefit to all parties concerned and increase the material wealth, there is but very little prospect of its general introduction in this country. Every man strives to become the owner of a farm, and only when such is impossible will he consent to become a renter. The idea in itself is correct and proper, but the mistake committed by a large number of such farmers is to invest their last dollar in buying a farm and then to be crippled in their operations for want of the necessary working capital. How much better would it be to take their little capital, invest it in renting a good farm where they, with ample means to take advantage of every oportunity presenting itself, in the course of ten years would accumulate sufficient to buy their own farm and have ample capital left to operate it to full advantage. The great drawback to farmers, as well as other business men in general, is their lack of working capital. Better do a small business of which you are perfect master, than to engage in large enterprises which you are not able to control properly for want of capital. L. A. HANSEN.

Bay St. Louis, Miss.

Beginners.

Editors American Farmer:

There must be a beginning to everything, and first principles in all vocations. One who undertakes to carry on any business should have studied and practiced the rudimentary parts appertaining to it. Some say there are no innate ideas; and if so, then learning and practice are necessary to the attainment of perfection. Learn, then, under competent instructors. Observe successful practiioners, and take a pride in your calling. Guessing does not succeed better in farming than other callings. Industry and perseverance are as essential, and should be practiced until they become habitual. Study the character of the soil, and find out its constituents; find out what cereals succeed best on it, and if rearing and grazing cattle, together with feeding, will be profitable, and will tend to keep up the fertility of the soil. Of course good cultivation is indispensable, and always procure the best manures, and a sufficiency of them. You will be most likely rewarded after you have done your part. There are always seed-times and harvests. Be ready for them. There is a difference in being in time and too late—"time and tide wait for no man." By being forward with your work, you may have the consolation, if there be a failure, it is not your fault. Be watchful of the seasons; they are not invariable. Find out also what is needed in the market. Some things may be easily raised, but not readily converted into money. Keep your stock in a thrifty state. Know what a laborer can do; do not require too much of him; see also that he is sufficiently provided for. When directions are given let them be clear, and be satisfied when they are punctually attended to, and well done. Recollect that all animals are flesh and blood, and require a sufficiency of food and shelter to protect them. By taking good care of implements they last longer; the same might be said of everything. Don't be satisfied with half-doing, but only with well-doing. Keep up the credit of your calling, and recollect that a man can reflect credit on it when it cannot on him unless he does his duty.

"Honor and shame from no condition rise;
Act well your part—there the glory lies."

Good farming pays; farmers are the bone and sinew of the land. Many callings flourish that are not exactly indispensable. Let agriculture go down and the tillage of the ground cease, there would be an end to all worldly glory. Money and all its worshippers "would be small by degrees, and beautifully less." Go ahead; faint hearts never succeeded. C.

West Virginia.

Grains and Grasses in North Carolina.

Editors American Farmer:

The Clawson wheat you gave me is very, very fine, and also the small lot of Fultz you sent me as a present by mail three years ago. I have not thrashed it out yet, but expect to make near a hundred bushels on about three acres of Fultz.

Our people are giving considerable attention just now to grain and grass, and clover is now getting to be appreciated. My lucerne is first-rate. I count it one of the foremost of forage plants. I have cut it once and it is nearly ready now to be cut again.

I was charmed with the last number of the old *Farmer*. Mr. Gilmer's directions for saving orchard grass seed is worth more to me than ten years subscription price of the *Farmer*. So you see I am speculating—making money out of you. But I have known you long enough to know that I am thrice welcome to it at your hands.

I enclose a couple of specimens of grass for name—one of them is indigenous to this farm, and the other came in some grass sent from your city. I suspicion one of the specimens to be Bermuda grass. Your friend,

Pitt Co., N. C., June 15, '76. JAS. JOYNER.

[No. 1 is Bermuda, or Scutch Grass, *Cynadon dactylon;* No. 2 is Velvet Grass, *Halcus lanatus.* —*Eds. A. F.*]

"Multum in Parvo."

Editors American Farmer:

This is the age of improvement, the march of mind and advance of inventions. The primitive simplicity of 1776 and the times for a succession of years are materially changed. The boundaries of the States are vastly extended. There has been an increasing influx of population pouring into the country until millions of people are scattered and settled over a vast area of territory. Manufactures have sprung up; land and water communication over and through the land; communication with the old world by sail, steam and telegraph. Our people have communication and commerce with most of the nations of the earth, and our commerce continues

to extend. There is nothing in arts and science in which we are not to some extent engaged.—Most of the things that are used by man are made or imported here. We have the raw material, to an almost unlimited extent, of the most useful and necessary articles. Nothing but capital and enterprise are needed to supply the wants of this country and many others, and in time will be put into requisition.

This being centennial year, and a great exhibition going on in one of our large cities, the foregoing remarks were readily elicited. The world will learn of us and we of them. We will have an opportunity to compare our manufactures with theirs. Our farmers, in their intercourse with those of the old world and our own States, have a chance to exchange views and compare systems. "Not having traveled, he knoweth nothing." Now you can see the different peoples at a glance, and converse with and listen to them. Agriculture has advanced scientifically and practically in the recollection of many of us. We have witnessed how the old systems exhausted the country, and to what means we have to resort to restore them to their pristine fertility; what changes have been brought about by machinery as to economy in time and money; how much better animals in use and for pleasure now are than formerly.

As many others, so is agriculture a living science. It has not yet arrived to that state of perfection we would all wish, but we hope that even in our time improvement will be brought about. Our predecessors acted up to the lights afforded them: won't we emulate their examples and keep pace with other branches of business? We are a power in the world, and we should work together for our good and that of our country. All of our people have a chance to improve: the schoolmaster is abroad in the land, and our country is a glorious heritage.

PHILO.

Our French Letter.

Fattening Farm Animals.

Messrs. Editors American Farmer:

There is no subject in Continental farming receiving so much profound attention as the fattening of animals, involving as it does directly their breeding and rearing. In the case of beef fat, it can be converted into *margarine*, which resembles butter in one particular, that of appearance. The fat of mutton is not at all relished by the consumer, and yet it is to produce a superabundance of fat, that oil cake and meals, so rich in nitrogen, and so costly too, are extensively patronized. There is not a little truth in the remark, that it is for the benefit of the cook that this excessive fat is manufactured; she insists on the fattest joints at the butchers, to enjoy the better the fattest perquisites. It has been shown, that the more a sheep, for example, is fat, that is, surpasses the rational mean average, the less it repays the aliments required to produce that excessive obesity, and which, be it observed in passing, is the most onerous of the whole process. It is held then to be more profitable to produce two sheep ordinarily fattened, than one a phenomenon of fat. The same principle applies to breeding; reproduction is injured, and perhaps a race becomes degenerated when the male is obese. Barn-door fowls are not reproduced by first enclosing the cock in a coop, and fattening him with the expedition of a Strasburg goose. French farmers on tying stock up for fattening, devote about ten days to a preliminary gradual increase of rations, which are distributed four times per day in summer and three in winter. As much of our contentment in this life depends on the stomach, so with farm animals; punctuality in serving meals, and no short commons, will be found to best promote repose and sleep: two grand agents in the process of fattening. The litter ought to be renewed every morning, and the bed made for the night. A dark, rather than a well-lighted shed, is preferable, having a temperature not disagreeably high, and an atmosphere humid rather than dry. Some, to secure the latter, water the alleys of the shed pending warm weather.

Preserving Green Fodder.

The regional agricultural shows are putting forth strenuous efforts to encourage agriculturists to rely on preserved green food, as a security against cold springs like the present, or dry summers which are very general, and that affect forage crops. M. Goffart invited a fortnight ago the leading agriculturists of France to be present at the opening of his pits, wherein had been placed, in October last, 20 tons of chopped green maize. Three points were conclusively established: the perfect preservation of the green food, after seven months enclosure in the trenches, without elevation of temperature, and the absence of all fermentation; the rapidity with which this food acquired an alcoholic odor; the avidity with which the animals consumed it, even when freshly-mown fodder was presented to them; 2, the satisfactory condition of twenty tons of green chopped rye after seven months enclosure in pits; and 3, the excellent state of the stock.

For soiling purposes several varieties of maize are in favor, according to climate and land; the latter is prepared as for an ordinary root crop, receiving from 15 to 30 tons of farm-yard manure, with a supplemental dose of guano or chemical fertilizers. Maize requires an energetic manure, the giant species exacting almost double the quantity given to the others. Experience has found, that chemical manures are superior to guano for maize, but the super-phosphate and sulphate of ammonia can be advantageously replaced by 3 or 10 cwt. of dissolved guano. The plant is a great consumer of phosphate. The seed is ordinarily steeped for one or two days before sowing, and the latter never takes place till a period when the spring frosts are not to be feared attacking the young plant.

French Agricultural Shows.

Every year the government endows a series of regional shows, some ten in number, so that in the course of eight years all the Departments benefit by these important agricultural competitions, and the wonders that time works can be thus accurately estimated. It is, however, strange that, at these shows, no prizes are offered for horses, and France is actively occupied to discover the means of improving the breed as

well as their number. The State alleges its own breeding schools are sufficient for all wants, which is a view not at all ratified by public opinion. Another desirable end to be attained is, that Frenchmen ought to learn how to ride; history proves that at one period they could bewitch the world with their noble horsemanship. Farmers, who formerly travelled on horseback, now do so in vehicles, or by rail; hence the decadency of an accomplishment now more than ever a necessity. At the regional shows carousals take place, where the troopers perform several feats of skill; the public feels interested only in how they sit in the saddle when charging an imaginary enemy. Since all able-bodied men in France must now perform military service, the wish is, that farmers' sons become habituated to the most complicated evolutions of horses. Some agricultural schools have recently added equitation to their subjects taught. At Carcass—one regional show—a novelty was introduced, that of giving prizes to the best pupils of the farm school; the teachers selected their most advanced boys, and the examination, public, oral and written, was conducted by the managing committee of the show. The subjects chosen were a description of the show itself: the advantages of a machine, of a special breed of stock, or a peculiar system of culture,—all having a local application and interest. There is a marked tendency to impart to farming studies a decidedly practical character; and the growing fashion of selecting the blue ribbons of the agricultural colleges, and sending them to travel and take notes in foreign countries of agricultural practices, expenses being defrayed by the State, is excellent.

An Experimental Farm.

The Saxon government has purchased M. Stecher's well known experimental farm, near Dresden, that readers and visitors may remember, has received no other manures since thirty years but feeble doses of guano and bone-dust, while being submitted to an eight-course rotation of cropping, wherein not only wheat figures, but where flax and clover are cultivated for their seeds. The soil is derived from gneiss rocks, and is consequently tenacious. At present all the crops are luxurious, and surpass in a marked manner those in the vicinity that receive the ordinary supply of animal manures.

Rickets in Animals.

Professor Roloff has been investigating the cause of rachitis, or rickets, in animals, owing to which the bones become swollen, soft, and deformed. The disease appears always when the animal is young. It is due to a kind of stoppage in the development of the skeleton; the organism has want of lime. In the case of aged animals this lime is furnished by the greater supply of food they take, finding all the lime and more, even, than they require. If the disease has acquired an intensity, it is rarely that the skeleton—the bones—resume development, and consequently the animal remains impotent and sorry-looking. For pigs, till six months old, and cattle and horses during their first year, it is essential to supply them with fodder rich in lime, or employing phosphate of lime. Bone dust is commonly mixed up with the young animal's food, and is, besides, very easily digested: a quarter of an ounce, daily, for pigs, and the double for stock. The chief point is to apply the remedy in time. Acid food is said to promote the disease; it does so in the case of pigs nourished on sour milk; the lactic acid, uniting with the lime in the rations, is expelled from the system in the form of a chemical salt.

The Phylloxera.

Patience and expectation describe the present condition of the phylloxera question: one has to wait for the results of new experiments. M. Boiteau has detected the insects marching out of the very buds of the vine. The opinions are quite contradictory as to the efficacy of the sulphuret of carbon remedy. The French consul at Canton has expedited some specimens of the *Eleæcocca:* a shrub that the Chinese plant to keep away a destructive white ant. It will be tried—as is every remedy suggested.

Items.

At Landshut, in Bavaria, and in other parts of that kingdom; also, a great mortality, a veritable epidemic, carried off hundreds of young horses; the foals were allowed their ordinary life in paddocks. From several *post mortem* examinations, it was discovered that the animals presented the same symptoms as when persons succumb from typhus fever; and it was found that the horses had been virtually poisoned from the emanations from neighboring fields that had been top-dressed with night-soil from the cities.

A new churn has appeared; its principle is to maintain the cream at a uniform temperature. This the inventor alleges to secure by inserting a layer of felt between the cavity formed by two walls of plated iron, the material of which the churn is composed.

Paris, June 1, 1876. F. C.

Agriculture at the Centennial.

The Germantown Telegraph says of the International Fair:

"There is no doubt but the agricultural department of the Centennial Exposition is not only the most complete of the kind ever seen at any International exposition, but by far the most interesting to the average American of any department of the whole Exposition; and if any one who had the requisite knowledge to compare what is seen with what is generally known, should take it in hand to give a thorough digest of everything as seen here, it would make one of the most interesting volumes ever given to Americans. No one can go through this wonderful department without being struck by some suggestive thought brought out by an exhibit at every turn," and

"The more the Centennial Exhibition progresses the more the advantages become apparent. Even in such a small matter as the fruit exhibition, thousands of people saw what they never knew before—the capacity of the two young States, Iowa and Michigan, for raising beautiful fruit; while Australia, almost to us an unknown country, told us at once by her deeds that besides the good sheep-raising country she is beginning to be known as, in fruit-culture (so far at least as the king of fruits, the apple, is concerned,) she can offer as good advantages to all who may be disposed to look on that fact as an inducement to settle within her borders."

Live Stock.

The Original Breed of Berkshire Swine.

[*From Allen's Prize Essay on the Berkshire Hog.*]

Tradition, and the earliest published accounts of what has long been particularly distinguished by the name of Berkshire Swine, represents them, down to about a century since, as among the largest breeds of England,—weighing, full grown, from 700 to 1,000 pounds, or more The "Complete Grazier" describes one, in 1807, as weighing 113 stone. (904 lbs.) This was exhibited, with others, by Sir William Curtis, at the cattle show of Lord Somerville, in that year. Johnson, in his "Farmers' Encyclopedia," London, 1842, says that they weighed at that time from 50 to 100 stone, (400 to 800 lbs.) The latter of these, doubtless, were of the improved breed.

Originally they were represented as being generally of a buff, sandy, or reddish-brown color, spotted with black, occasionally tawny or white spotted in the same manner. They were coarse in the bone; head rather large, with heavy flop ears; broad on the back; deep in the chest; flat-sided, and long in the body; thick and heavy in both shoulders and hams; well let down in the twist; bristles and long curly hair, with rather short, strong legs. Their meat was better marbled than that of any other breed of swine in Great Britain—that is, had a greater proportion of lean freely intermixed with fine streaks of fat, which makes it much more tender and juicy than it would otherwise be. They were consequently, from time immemorial, preferred to all other swine there, for choice hams, shoulders and bacon. They were slow feeders, and did not ordinarily mature till two and a half to three years old.

It is thus that I find the Berkshire hog figured and described in the earliest English publications to which I have been able, thus far, to obtain access. But in the second volume of the magnificent folio edition, illustrated with colored plates, now lying before me, of "The Breeds of the Domestic Animals of the British Islands," by Professor David Low, published in London, in 1842, is a portrait of a Berkshire as I have described above, except being of rounder body and somewhat finer in all his points, with ears like most of those of modern breeding, medium in size, and erect instead of flopping. This portrait is of a sandy or reddish-brown color, spotted with black; the feet and legs for nearly their whole length, white, slightly streaked on the sides and behind with reddish-brown. It, of course, represents one of the old breed considerably improved, and marked as I occasionally found them in all my visits to Berkshire, down to 1867. But the pigs which I saw thus marked were of the same size and shape, and as fine in all their points, as the general run of the black, slate, or plum colors of the present day.

Formation of the Improved Berkshire Swine.—Tradition tells us that this was made by a cross of the black or deep plum-colored Siamese boar on the old unimproved Berkshire sows. Other traditions assert that the black and white spotted and even pure white Chinese boar was also sparingly used to assist in the same purpose. I can well believe this; for I often saw swine in Berkshire spotted, about half and half black and white, in addition to the reddish-brown, or buff and black, and so on almost up to a pure plum color or black. The produce of the above cross or crosses was next bred together, and by judicious subsequent selections, the improved breed, as we now find it, became, in due time, fixed and permanent in all its desirable points.

Another feature, aside from the half and half black and white spots hitherto occasionally found to mark the improved Berkshire Swine, which may be adduced in support of the supposition of a sparing cross with the white and light spotted Chinese, is the shape of the jowls. All these which I have bred in my piggery, or imported at different times direct from China, or have seen elsewhere, had much fuller and fatter jowls than the Siamese. Some of the breeders in England preferred the fat jowls, because carrying the most meat; others the leaner, as they said this gave their stock a finer and higher-bred look in the head.

The Siamese Swine.—In the same volume of Professor Low which contains the Berkshire portrait as described above, is a colored plate of a Siamese sow. She is a dark slate, varying to that of a rich plum color. The two hind feet are white; the fore legs and feet white, shaded in front with plum. The face is dished; head fine, with short erect ears; shoulders and hams extra large; back broad, with a deep round and longish body. This sow is represented with a slightly swayed or hollow back, at which we need not wonder, considering its length, and that she has a litter of nine great, fat pigs tugging away at her dugs. These Professor Low says were got by a half-bred Chinese boar, which I presume, from the color of the pigs, was white; for some of them were pure white, while others are mixed slate or plum and white, and one is a buff, with black spots, like the original Berkshire.

I will now describe the Siamese Swine, such as I possessed and bred for several years on my own farm. They varied in color from deep rich plum to dark slate and black; had two to three white feet, but no white on the legs or other parts of the body. The head was short and fine, with a dished face, and rather thin jowls; ears short, slender and erect; shoulders and hams round, smooth and extra large; back broad and somewhat arched, except in sows heavy with pig or suckling pigs, but even then it was straight rather than swayed; body of moderate length, deep, well ribbed up, and nearly as round as a barrel; chest deep and broad; twist well let down; legs fine and short; tail very slender and well set, with a handsome curl in it near the rump; hair soft, silky and thin; no bristles even on the boars; skin thin and of a dark hue, yet when scalded, scraped white; flesh firm, sweet and very tender, with less lean than in the Berkshire. Although so compact, round and smooth in build, they had a fine, high-bred, up-headed style, especially in their walk, which instantly attracted the attention of all who called to see them. They were moderately pro-

lific, and hardy as any other breed of swine I ever kept,—the extremes of heat and cold never injuring them. They were gentle in disposition, very quiet, and easily kept, and would partially fatten on good pasture, or coarse raw vegetables. They could be made fit for the butcher at any age; matured at 12 to 15 months old; and when fully fattened, generally weighed from 250 to 300 pounds, occasionally going to 350, or even 400 pounds. They had very fine bones and light offal.

It was, doubtless, with Siamese boars as perfect as I have here described, that the cross was made on the original Berkshire sows, which has contributed so largely to the formation of the improved breed, held in such high estimation for a full century or more past.

When was the Cross first made.—Several aged men in different parts of Berkshire, of whom I inquired on my first visit to England, in 1841, informed me that they had known there improved swine of the same type as I then found them, from earliest childhood. But the most particular, and apparently reliable, account I was able to obtain, was from Mr. Westbrook, of Pinckney Green, Bysham, who told me that his father possessed them as early as the year 1780, in as great perfection as the best then existing in the country. Thus it will be seen that the improvement is now at least a century old, and more probably a century and a quarter; for it would have taken some years back of 1780 to begin a new breed of swine, and get it up to a fixed type at that period.

Characteristics of the best of the Improved Berkshire Swine at this time.—Snout and head fine and rather short, but larger in proportion to the body in the male than in the female, and with a bolder and more determined expression; face dished and broad between the eyes; jowls full or thinner, according to the fancy of the breeder; eyes bright and expressive; ears small, thin and upright, or inclining their points a little forward; neck short, rather full in the throat, and harmoniously swelling to the shoulders; chest broad and deep; back broad and moderately arched; rump nearly level with it; well let down in the twist; body of good length and depth, round with well-sprung ribs, and straight along the sides and under the belly; shoulders, above all, in the boar, extra thick, yet sloping smoothly to the body; hams broad, round, deep, and so thick through from side to side, particularly in the sow and barrow, that, standing directly behind, except when pretty fat, the sides of the body are scarcely seen between them and the shoulders; legs fine, strong, of moderate length, and set rather wide apart; feet small, with clear, tough hoofs; tail slender and well set, with a handsome curl near the rump; bones fine and of an ivory-like grain and hardness; offal very light in comparison to weight of carcass; hair fine, soft and silky; no bristles, even on the boar; skin thin and mellow, with elastic handling of the flesh beneath; quick and spirited in movement; stylish in carriage, and, in the boar, more especially, bold and imposing in presence.

[We may in our next give some additional extracts from this interesting essay of Mr. Allen, including practical suggestions on breeding. *Ed.*

Lameness in Horses.

Sandcrack is a defective state of the horn of the hoof, evidenced by the occurrence of a fissure, which generally extends through the thickness of the horn and sometimes reaches from the coronet to the ground surface, forming a complete line of separation between the two sides of the hoof. Horses which are employed in farm work are particularly liable to sandcracks owing to the brittle condition of their hoofs from exposure to wet and dirt and the absence of the care which is usually devoted to the carriage horse or hack.

Hoof horn being a mere secretion from the membrane of the internal foot, is quite at the mercy of external influences, and can be kept either in a hard or soft state, according to the means which are employed for that purpose. Some horses' hoofs are naturally soft and pliable, others hard and brittle; but the defects, where they exist, can be corrected by artificial means, if sufficient trouble be taken; under ordinary circumstances, however, the feet of horses which are used for rough work are not attended to, so long as the animal remains sound, and thus it happens that the horn may assume a dry and brittle condition without notice, until the accidental application of force in the course of the animal's movement causes a crack in the direction of the fibres, and an accumulation of gritty material in the fissure leads to its extension, and finally causes irritation of the internal vascular membrane, and consequently lameness. In some cases, sandcrack is undoubtedly due to an injury to the secreting surface, the coronet which disturbs the function of the part; in such cases the crack will appear at the upper part of the hoof, close to the skin. In other cases where the accident arises from general dryness and brittleness of the horn, the crack commences at the ground surface of the hoof, and extends upward, suddenly or by degrees, according to the intensity of the force applied, or the resisting power of the horn. Sandcracks of this character generally appear in the front of the hoof, and more often in the hind than in the fore feet.

Lameness, as the result of sandcrack, depends on one or two causes: either the dirt has passed through the fissure to the internal foot, and set up disease in the membrane by simple contact; or from the frequent movement of the sides of the fissure, when it is very extensive, a portion of the membrane has been pinched between the edges of the horn, and inflammation produced in that way; in the latter case, granulations of a fungoid character spring from the diseased structure, and fill the fissure with highly vascular and sensitive structures, which are injured every time the animal uses his foot.

Treatment of sandcrack will vary according to the complication which may exist, but in common cases the object is to prevent any movement of the separated parts of the hoof, by adjustment of the shoes and other mechanical means, and to stimulate the secreting surface, the principle of cure being that new horn must be furnished from above, so that the unsound structure is ultimately forced downward and gradually worn out, or cut away in the process of shoeing.

For the purpose of preventing movement between the sides of the fissure, various devices have at different times been suggested. When the crack is at the front of the hoof, a strong clip in each side of the shoe is effectual; in other cases it is advised to drive an ordinary shoeing nail through the sides of the crack and clinch the ends. A strap firmly buckled round the hoof, or tape tied tightly, may be used with good effect in some cases.

The mechanical skill of the operator having been successfully exerted to prevent movement between the sides of the sandcrack, there remains nothing to be done beyond the application of a stimulant to the coronet immediately adjoining the part where the sandcrack exists. A little common blistering ointment rubbed in once or twice a week is very useful for this purpose, or two or three lines may be drawn across the upper part of the fissure with a firing-iron.

It is not necessary to keep the animal from his ordinary work during the treatment, but the part must be carefully examined at intervals to ascertain if the new horn, which is secreted from the coronary surface, is formed. Should it be found that the crack extends into it, a repetition of the stimulant to the secreting surface will be required.—*Agricultural Gazette.*

GARGET.—In reply to a question whether potatoes fed to any considerable extent will produce garget, *The Scientific Farmer* says:

Garget, inflammation of the udder, or mammitis, is a disease which may arise from various causes, and these may be both local and constitutional; amongst the former may be mentioned all blows and injuries to the udder, and the practice of not thoroughly "stripping" at milking time; amongst the latter, all irregularities of diet, as a too highly nourished state of the system at the time of calving, or a *too sudden* change to any food which from its nature will increase the flow of milk; that food in which water abounds will increase this flow, is a fact.

In 100 parts of Swedish turnips are 91.0 parts of water.
In 100 parts of red clover, green, are 76.0 parts of water.
In 100 parts of potatoes, raw, are 75.9 parts of water.

Therefore, it will be seen that a *too sudden* or *injudicious* allowance of potatoes, green clover, or Swedish turnips, will be very likely to cause garget by suddenly stimulating an organ which is already in a high state of activity. Thus far the potato will do as much harm and no more than any other food containing an equal amount of water. It has, however, one quality which should perhaps not go unmentioned here, and that is, that an overabundant feeding of them will occasionally produce a form of diarrhœa which is very prostrating, and apt to terminate fatally in a short period of time.

FOOT ROT.—The same paper says: Foot rot or foul in the foot in cattle is caused by irregular growths of horn, producing an unnatural bearing and splits in the hoof; and so irritation by the entrance of dirt, sand, etc., or it may be caused by the animal's standing in wet or filth, producing a softening of the top of the hoof, and so an exposure of sensitive surfaces. Pus is formed from this presence of foreign bodies, and burrows downward through the soft tissues within the hoof, and so the state of things described is brought about. In some few cases the hoof may be entirely removed; whilst in others there is merely a continuous fetid discharge. Condition is greatly sacrificed, and the appetite much impaired. The treatment will be in the first place to thoroughly examine the space between the hoofs and all around their tops; all foreign bodies and dead matter must be removed, and all loose pieces of horn cut away with a sharp blacksmith's knife. Then dress the raw surface so exposed twice daily with a solution of carbolic acid, one part to fifty of water, until all discharge ceases; afterwards dress with simple cerate until perfectly recovered. Keep the standing place as dry and clean as possible. As the disease is communicated by the contact of healthy feet with the discharge from the unhealthy ones which may be left about, the affected animals should be kept by themselves until all discharge has ceased.

Heavy Fleeces.

Genl. Jno. S. Goe, of Brownsville, Pa, writes us that his pure bred American Merino sheep, (samples of the fleeces of which of great fineness he sends us,) shorn May 31 to June 3, yielded as follows; Fourteen rams, 1 year old to aged, inclusive, from 13 lbs. 1 oz. to 31 lbs., and fifty-four ewes, from 1 year old to aged, from 12 to 29 lbs.

The Dairy.

Management of Dairy Cows.

Editors American Farmer:

We recommend this article in the June number of *The Farmer* to the perusal of its readers. Too much care in the management of cows cannot be bestowed. They will liberally pay for all there is done for them, and let us say that without the utmost care they will not give full returns.

On two points, meanwhile, we desire to make some remarks. It says: "Whether the latter (soiling) is preferable to pasturing, is still a mooted question, and depends very much on circumstances. Where pasture is thin and short it is no doubt preferable to pasture, but heavy grass of any kind it is economy to cut and haul to the racks or mangers, *for in the latter case one acre will feed as far as three if pastured.*"

This quotation admits that soiling is preferable where heavy grass or soiling forage is produced. Why, then, be content with *thin* and *short* pasturage? Why not aim to produce *heavy grass?*

It is a very poor policy to keep a dairy and compel the cows to subsist on *thin* and *short* pasturage. The dairyman must have ample forage for his cows, winter and summer; and until he produces such, he will look in vain for the profits he ought to derive from his dairy. Therefore, the first thing he has to do is to put his soil in such condition as to produce amply.

The article further says: "The prevalent custom with farmers of cleaning out their cow stables once a week instead of once or twice a day, is at best but filthy and slovenly, and seriously affects both the cow and her milk."

This question may properly be stated to be a mooted one. There is no doubt that the general management, where manure is only removed once or twice a week, is detrimental to the cows and their milk. If properly managed, we contend that such is not the case. We have practiced it for a number of years and our butter has always commanded the *very highest* market price.

The secret is simply to be constantly applying plaster to the manure, and provide the cows with an *abundance* of litter. If such is done, we guarantee against all bad effects. The advantages of this method are, that less labor is required, and that, when his manure is removed and hauled *direct* to the spot where it is wanted, it can be ploughed under at once, provided the soil is in proper condition. It also retains more of its fertilizing qualities, as it is not exposed so much to the air, being tramped close and compact by the cows.

Where soiling is practiced the removal of the manure oftener than once or twice a week is next to impracticable, provided they are fed in a yard with shed. We do not wish to be understood to have any objection to the removal of the manure once or twice a day where it is practicable; on the contrary we like it best and practice it; but whether the first-mentioned method is not the best in regard to producing *more* and *fully* as good manure is, we say, *still a mooted question.*

Bay St. Louis, Miss. L. A. HANSEN.

When should Cows of a Butter-Dairy Calve.

Also this article in the June number of the *Farmer* is a most excellent one. The principles set forth therein have been acknowledged more than half a century ago, by the best dairying countries in Europe, and stand to day unquestioned. L. A. H.

Fodder Corn for Milch Cows.

Our own experience, for years, of the value of fodder corn for stock, and especially for milch cows, has induced us, on the return of every spring, to endeavor to impress upon farmers, and others having cattle, to put in a lot of this forage crop, and we are gratified to find that each successive season the practice is on the increase in every section of our land. We noticed in our June number some experiments, as detailed at the Dairymen's Association of Vermont, by Mr. Sheldon and others; but having since received a more full report, we think it will be acceptable to our readers to give further details.

Mr. C. L. Sheldon read a paper on cheese-making, in which he said:

The past season was peculiar in several particulars. Among those we first notice is the milk production as compared with the season of 1874. In 1874 we received at the factory the milk of 642 cows, all told, and for 1875 the milk of 659 cows. The aggregate yield of milk for the season of 1875, as compared with the previous season, is 5 6 10 per cent. poorer, and for the same period of the season it is 9 9-100 per cent. poorer. Taking June of 1874 as the basis of comparison for the different months, we find the yield of June, 1875, to be 2 67-100 per cent. less. July, 1875, shrinks 12 46-100 per cent., or 13 93-100 per cent. more than August, 1874.—September, 1875, shrinks 43 15-100 per cent., or 10 32-100 per cent. more than its corresponding month. October, 1875, shrinks 52 82-100 per cent., or a difference of 3 83-100 per cent. corresponding month of 1874. It will be noticed that no month of 1875 has quite equalled its corresponding month of 1874, and that the percentage of shrinkage is greatest in August; that July also lost heavily. About the time of the greatest shrinkage it was common for dairymen to remark: "I don't know what makes my cows shrink so; they have plenty to eat and come up to the milking-barn well filled, and are in excellent condition as to 'flesh.'" This condition of things, to our own mind, suggests the following explanation: The feed grew faster than it was consumed; the tender, succulent grass became dry hay, losing the chief quality of milk production. If this be the correct explanation of the case, it suggests the need of some remedy. If the dairyman increases the number of his cows, so as to consume the grass as fast as it grows through the flush of the season, he will have too many for the after part; and if the dairy is too small, the difficulties already mentioned obtain; so that, in either case, some supplementary ration must be provided for the cows. Of the quality or amount of this ration it is not our purpose now to speak.

But of the value of fodder-corn, as fed by one of our patrons, we are furnished with data from which we figure out the following result: This patron's June milk was 3 6-100 per cent better than the average yield of the factory for the same time. His July yield is 96-100 of one per cent. better than his June, and 10 85-100 per cent. better than the factory average. His August losses 20 37-100 per cent., but 9 34-100 per cent. less than the average shrinkage. His September losses 33 8-100 per cent., but 7 5-10 per cent. less than the average loss of the factory for the time. These comparisons are based upon this patron's yield for June. For the 4 months mentioned, this patron gains 11 12-100 per cent. over the factory average for the same time, and after deducting his increased yield for June we find the ratio of his shrinkage is 8 5-100 per cent. less than that sustained by the factory. This showing, though not remarkable in itself, points clearly to one of the ways in which losses are sustained by dairymen; and though fodder-corn may not be the best remedy, still it seems to prove itself 8 per cent. better than no remedy at all, and this during a season when the grass product was abundant. Our dairymen need to provide against this tendency to shrinkage. A little forethought in this direction may make all the difference between keeping cows at a loss or at a profit.

The reading of the paper was followed by discussion:

Mr. Armstrong, a resident of Southern Vermont, said the complaint of milk not being as rich as last season was general. It required more milk to make a pound of cheese.

Mr. Babcock, of Herkimer, inquired on what basis the comparison had been made.

Mr. Hawley, of Onondago, said where grass grew so rapidly as to turn into hay, the quality of the milk would not be as rich.

Mr. Bliss thought the wet season made the grass more succulent and not as nutritious. He thought this was the cause rather than the grass turning to hay.

Mr. McAdam, of Rome, said his average in 1873 was 9.76 lbs. of milk to a lb. of cheese; in 1875 it was 9.68. They were making upwards of 340,000 lbs. of cheese annually. His experience was that milk had not deteriorated.

Mr. Wetherell, of Massachusetts, said he had a friend who began feeding his cows with fodder-corn. The result was even better than stated by Mr. Sheldon. When the grass became dry or too scanty, then was the time for fodder-corn. He considered it the best substitute that could be given to dairy cows in July and August. If it was objected that it was too succulent, the same might be said of the blue grass of June, which made the richest butter.

Mr. Lewis thought grass was better than fodder-corn. June grass never had over 60 to 66 per cent. of water, while fodder corn had over 90 per cent. The good results obtained from fodder-corn in Massachusetts were from corn partially dried.

Mr. Wetherell said the experiment he had related was made with uneared fodder-corn just cut, and not dried. Water in grass may be less than in corn; but in July and August the grass is gone and cannot be had. Then is the time when fodder-corn gives an increased per cent. of butter and cheese. A friend of his had obtained better results with one acre of fodder-corn than with two acres of Hungarian grass.

In answer to Mr. Farrington, of Canada, Mr. Sheldon said the season in Lewis county had been a medium one, with considerable rain in August and September.

Mr. McAdam said the season in his locality had been a wet one.

Mr. Sheldon said the corn he had referred to was sown in drills.

Mr. L. S. Hardin, of Kentucky, said cows fed exclusively upon corn-fodder shrank rapidly in milk. It, however, did very well to feed with dry grass.

Mr. Talcott, of Rome, said the past season he had half an acre of sweet corn. He picked and sold a large quantity of corn in the ear in Rome, feeding the rest to the cows. He was so well pleased with the experiment that he should plant five acres of sweet corn next season.

Mr. Farrington, of Canada, said he understood that a cheese-factoryman in Oswego had prohibited the use of sowed corn by his patrons, on the ground that it injured the cheese. He would like more light on the subject.

Jacob Ellison, of Herkimer, said A. L. Fish, a noted dairyman of the State, had cheese to sell at one time, the finest he ever had in his factory. These were made by feeding the cows ears of corn fit for boiling, salted. He bought the cheese for 8c., when the highest market price was 6c. He sold them in Philadelphia for 11c.

L. B. Arnold said he had taken the milk of three patrons in October, who were feeding nothing but grass, and the milk of three other patrons who fed nothing but fodder-corn, sowed broadcast. The experiment was to take an equal quantity of the milk of each, curding it with the same amount of rennet, at the same temperature. The curd was then dried. The milk of the corn-fed cows gave 8¼ per cent. of curd; that of the grass-fed only 6¼ per cent. of curd. This showed forcibly the value of corn. At Marengo, Illinois, cows were fed with grain all summer. The butter there was superior to that made from the pure blue grass. He had been in the habit of thinking that the best results were had with June grass alone, but this grain-feeding circumstance showed otherwise.

Horticulture.

Maryland Horticultural Society.

The June Show in the handsome cafés at the Academy of Music was one of the most interesting and satisfactory yet held by the Society. The available space was well filled, the exhibits were nearly all very meritorious, and the attendance of visitors large in numbers and approving in comments. The series of monthly exhibitions of this year have been unqualifiedly successful, and the influence of the Society is plainly to be seen in the improvement in the class of plants presented for its prizes. The standard is constantly rising, and the contrast between the exhibits at the earlier meetings and those presented now is marked and gratifying. Persistence in demanding real excellence as a requisite for obtaining the awards will still further promote skill and attention.

We refer in this mainly to plants and flowers. We hope to see an advance in the departments of fruits and the esculent vegetables. These productions are not less worthy of attention, and in an economic point of view they have for our section much more importance even than the other. Our State Society will not have reached its full capacity of usefulness until it not only gathers into its active force the bulk of the fruit-raisers of Maryland, both those who grow for market and for their own use, but has made well-digested lists of sorts suited to the varied surface and conditions of the different portions of the State.

The Society is so happily situated, as regards the number of gentlemen of experience and skill in its membership, that its influence has the widest field for its exercise, as well in the elevation and refinement of taste as in the improvement of fruit culture, and the aid which it can

bring to inexperienced beginners; and it is on this account that we are hopeful of seeing increasing regard paid to the more utilitarian branches of Horticulture as distinguished from those more ornamental.

June being peculiarly the month of Roses, these and other cut flowers made a prominent part of the display. John Saul, of Washington, had a large number of kinds of roses and other flowers. Cromwell & Congdon had cut roses of great beauty; W. D. Brackenridge a profuse display of cut flowers, mostly of hardy plants, the Peonias being especially fine; John Cook and John Edw. Feast had handsome cut flowers, and the last named, table designs, baskets of cut flowers and hand bouquets of inimitable beauty and good taste. Wm. H. Perot exhibited roses of fine form and color; and August Hoen showed many unique kinds not often seen on exhibition and a well-arranged general collection of cut flowers. The only fruit shown was a collection of strawberries from John Cook, including specimens of Monarch of the West of immense size and handsome color; and cherries from Edmund Law Rogers and C. Hess.

The plant display was large, and in the main good. The veteran John Feast out-did himself, and had two tables covered with selections from his large and rare collection, including Foliage Plants, Palms and other kinds of interesting forms, and on the floor a large plant of a double white *Nerium* and a *Tornelia fragrans*. Jas. Pentland, after filling two tables in one room, spread over another in the room set apart for cut flowers, including among other good things a superb plant of the always attractive *Clereodendron Balfouri*, which Mr. P. seems to have the knack of growing exceptionally well. Robt. J. Halliday had a fine mixed collection. R. W. L. Rasin had some very handsome stove and greenhouse plants, and a collection of decidedly the best Pelargoniums ever shown in the Society. W. H. Perot's table was effective and good, the Geraniums being remarkably well grown and bloomed. Ezra Whitman had a number of large Fuchsias in profuse bloom, and numerous other plants.

The following is the list of awards:

Professional List.—Best 36 cut Roses, $10; best 12 Summer Roses, $3; best 12 Remontant Roses, $3; best 12 Tea Roses, $3; best 12 Bourbon Roses, $3; John Saul, Washington, D. C. Cromwell & Congdon's 36 cut Roses, highly commended. Best 6 ornamental foliage plants, $4, John Feast; 2d best $2, Robt. J. Halliday. Best 6 variegated foliage plants, $4, John Feast. Best specimen variegated plant, $3, James Pentland; Best 6 Lycopods, $2, James Pentland; best 6 Palms, $5, John Feast; best 6 Fuchsias, $3, James Pentland; best pair hand Bouquets, $3, best basket cut flowers, $3, best table design, $5, J. Edwd. Feast; second best table design, $3, Geo. Bell. Best and largest collection cut flowers, $5, John Saul; second best, $3, W. D. Brackenridge. Best 6 varieties strawberries, $5, and best quart of new variety, $3, John Cook. Best collection of Cherries, $3, and best single quart, $2, Edmund Law Rogers.

Amateur List.—Best 24 kinds cut Roses, $5, W. H. Perot; best 12 Summer Roses, $3, and best 12 Remontants, $3. August Hoen. Best 6 ornamental foliage plants, $3, R. W. L. Rasin; best 6 Ferns and Lycopods, $2, R. W. L. Rasin; 2d best do. W. H. Perot; best 4 Fuchsias, $3, Ezra Whitman; best Hanging Basket, $1, Ernest Hoen; best collection cut flowers, $3, August Hoen; best basket cut flowers, $2, R. W. L. Rasin; 2d best do. $1, C. Hess; best bouquet of Indigenous Flowers, by exhibitor not over 16 years old, $4, E. W. Hoen; 2d best do. $2, Willie Feast.

The committee gave special commendation to R. W. L. Rasin for a large display of Pelargoniums, unusually well grown; to Edward Kurtz for handsome Deutzia Crenata flora pleno alba; and to W. W. Spence for cut bloom of Cereus grandiflora.

The regular meeting in the evening was as well attended as the moderate size of the room in which it was held would permit. The subject of offering to the city an expression of the Society's opinion on the propriety of its acquiring the Homewood Park property was, after some discussion, continued.

Mr. James Pentland then presented the following resolutions, with a few remarks pertinent to the subject, and suggesting that the Society ought to at once take steps to prepare for the meeting here of the Pomological Society:

Resolved, That a committee be appointed to consist of thirteen members, of which the President shall be chairman, to represent this Society at the meeting of the American Pomological Society in Philadelphia on the 11th of September next, and at the Reunion to be given to the same Society by the Pennsylvania Horticultural Society on the 15th of the same month.

Resolved, That said committee be requested to signify to the officers and members of the American Pomological Society the appreciation entertained by this Society of its acceptance of the invitation to assemble in the city of Baltimore at its biennial session in 1877, and to express the great pleasure we anticipate in receiving the National Society as our guests.

Resolved, That this Society commends to the favorable consideration of its members and of all the fruit-growers of Maryland the request of the Pennsylvania Horticultural Society for contributions of collections of fruits to its Exhibition at the time of the assembling of the American Pomological Society, in order that the capacity of our State in that line may be fully shown once at least during the International Exhibition in Philadelphia.

The resolutions were unanimously adopted and the following gentlemen appointed:

President W. H. Perot, Chairman; James Pentland, August Hoen, Wm. D. Brackenridge, R. W. L. Rasin, E. Law Rogers, W. W. Spence, Col. Edw. Wilkins, John Cook, Chas. H. Snow, Ezra Whitman, John Feast, Wm. Fraser.

The Society then adjourned to September.

The Executive Committee at a meeting held subsequently fixed upon September 20, 21 and 22 as the time of the Annual Exhibition. It is not yet determined where the show will take place, but it is probable the Armory of the Fifth Regiment M. N. G. will be again secured for the purpose.

Potomac Fruit-Growers.

April Meeting.

Messrs. Editors American Farmer:

On exhibition were fine specimens of apples. The Abram, Smith's Cider, Rawles' Genet, Ridge Pippin, Sweet Winter Paradise, Roman Stem and Tukesbury Winter Blush, the latter particularly solid and juicy.

It is worthy of mention that one of our members sold a quantity of Easter Beurre Pears in market early in the month.

Mrs. Nute read an interesting paper on the

Cranberry.

The botanical name of this plant is *Oxycoccus*,—*oxus*, sour, and *kokus*, berry—sour berry. It is easy of cultivation; thriving on lands that are well-nigh useless, requiring a small amount of labor in growing and harvesting, and the fruit commands good prices. These are qualities that combine to make this one of the most profitable of our fruits.

The first American Cranberry "patch" set in a bog in Barnstable, Mass., more than 50 years since, never fails to yield a remunerative crop.

The soil in which this plant thrives is that of an alluvial formation. Sand is alluvium separated from the drift. On drift, that is to say clay, gravel or loam, the Cranberry will not thrive.

Remove from the top of the bog or marsh several inches of soil, covering with from 10 to 15 inches of sand, and you have the proper home of the Cranberry. To plant, cut the vines with a hay-cutter two inches long; these dibble in rows two feet apart; they soon run together and cover the ground.

The scourges of the Cranberry are the frosts and the moth. The remedy against these is flooding.

When there is danger from early or late frosts let on the water. When the larvæ of the moth appear, let on the water. As soon as the ground freezes in the Autumn the water may be let on, to remain according to the latitude, to 10th of May in New Jersey, to June 10 in Wisconsin. [But this matter of "flooding" is an open question. Many cultivators blow at the idea, and raise good crops without this trouble and expense.—*Reporter.*] In times of drouth, it is well to let on say 2 inches of water.

Picking the fruit begins in September, before the berries are fully ripe.

As specimens of the marvelous yield of this fruit, take the following from Wisconsin growers: One man from 400 acres had a crop of 14,000 bushels. Another from 40 acres, realized for his crop $10,000. [In New Jersey, from ¼ of an acre a party receives for his crop from $1,000 to $1,500 annually.—*Reporter.*]

What has been quaintly said of the Strawberry, can be justly said of the Cranberry: "Doubtless God might have made a more perfect berry, but doubtless he never did." Certainly never a more profitable one.

Prof. Taylor spoke of the rot. He had, at the desire of the Commissioner of Agriculture, investigated the failure of the crop from this cause in New Jersey, and was satisfied that it resulted from the mode of culture; chiefly from a neglect of the proper preparation of the soil, or tampering with stale sulphate of lime as a fertilizer. Plenty of clean sand and pure water are the indispensable requisites for healthy growth.

May Meeting.

On the tables were specimens of Persimmons from Japan, resembling large Figs. Also an Apple for a name, which was decided to be the "Monmouth Pippin."

President Gray read an interesting paper on

"The Strawberry."

After a very proper panegyric on the fruit, and a pleasing reminiscence of boyhood days and the wild strawberry, he said: The growing of this fruit is one of the achievements of the past few years. To-day we cultivate for profit. The next generation will change the standard. Then we shall go back, or rather forward, to a finer quality of smaller fruit. Our present age of gaudy show will be followed by one of merit. "True inwardness" is now certainly a misnomer; for we judge of quality by outward appearance. Very few purchasers of fruit, for instance, would select the queenly Lady Apple instead of the larger Gloria Mundi, though an ounce of the one has more true inwardness than a pound of the other.

So also the Hovey, or New Pine, or Hooker, whose delicacy, exquisite flavor, and peculiar aroma, has long since given place to such gross monstrosities as the Agriculturist, which possesses none of these fine qualities.

We are good and abundant feeders, but in the epicurian school are poor philosophers.

The soil for this berry is a clay loam. Select a spot that has been thoroughly cultivated the previous year. Lay off with a one-horse plow the rows 3½ feet apart; open and back furrow. On this ridge set your plants 16 to 18 inches apart. In the open furrow before plowing spread your superphosphate at the rate of from 500 to 2,000 pounds per acre.

Then by putting the labor and fertilizer of an acre on one-half an acre, we will realize more dollars in quality of fruit, and by more thorough cultivation retain the plantation for years.

If now we allow such plants to send out but two runners, each of which shall make but one plant, we will have a uniform plantation, with the stocks sufficiently distant to be cultivated with the hoe. Then thoroughly mulch.

If a judicious selection of varieties has been made, the fruiting season can be prolonged, and the fruit improved in both quality and quantity. Instead of small and unsalable berries, they will be large and find a ready market at remunerative prices. The extra culture will be more than repaid by extra size (and saving in picking) and extra price in market. I have planted this spring Triumphe de Gand, Col. Cheeney, Monarch of the West, Kentucky, Chas. Downing, Boyden's No. 30, Netherby and Wilson's Albany.

G. F. NEEDHAM.

Washington, June, 1876.

Pear Blight in Maryland.

Messrs. Editors American Farmer:

I have been congratulating myself in the past on the comparative exemption from Pear blight, that has been my good fortune since I commenced to cultivate this fruit. But this spring and summer it has affected my trees in a way that quite discourages me. Trees in the finest growth, and those that appear to be somewhat stunted, have been equally hurt, and standards as well as dwarfs.

Doctors say that they never can successfully cope with a disease, until they discover the cause, and this is the case with Pear blight. Now while I cannot pretend to say what it is, I am well convinced as to what it is *not*. It is *not* caused by frozen sap. I have quite a large tree on which I put, some years ago, over forty grafts, in six or seven varieties. The blight is taking all the Glout Morceau, but Winter Nelis and Manning's Elizabeth have not been touched. The Glout Morceau kill down to where the graft was inserted and in several cases the original tree has sent out young wood at that place. Now it seems to me if the sap was the cause, all the tree would partake of the poison. In some cases it is first seen on the young growth and works down, and again takes hold in the middle of the tree and works both ways. Again it breaks out all over the tree, and extends to the whole in a few days. I have a tree of Beurre Superfin that is perfectly clear of blight, but some young suckers from the root are very badly hurt.

My pears have been in sod for several years, but this spring I ploughed it up; but I do not think that this has anything to do with it, as some trees that were not worked are as badly blighted as those that were. It commenced with me just after the rains some two weeks ago. I have always noticed that the same weather that tends to produce rust in wheat, is followed by blight. Up to this time, I have not seen any damage to Seckle, Duchess, Lawrence, General Taylor or Beurre Clairgeau.

Glout Morceau, Easter Beurre, St. Michael Archange and several others have been sadly hurt. Later in the season, when the blight stops, which it mostly does with me by July 1st, I will be able to give you a list of those kinds that are least liable to injury from this terrible annoyance. Between blight, and borers, potato bugs and cut worms, we truly earn what little they leave us. Yours truly, CHAS. H. SNOW.

Harford Co., Md., June 21st, 1876.

Observations on Pear Blight in Eastern Virginia.

Messrs. Editors American Farmer:

In Tidewater Virginia, the present spring we have had twig blight on pear, and to some extent on other fruit trees, more extensively prevailing even on the best fruit-tree soils, than the writer remembers to have seen it any season since the war. The following observations are taken from an orchard containing about 1,200 trees, standards and dwarfs, of over twenty varieties, varying in age from four to twenty years. Recent conversation with other pear-growers in this section, one of whom has several thousand trees, from which the blighted limbs have been removed by the cart-load, confirms my own views as to the cause of this sad visitation of the scourge of pear-growers.

It will be remembered that when our Duchess pears were in full blossom the past spring, a cold wave swept over our section, there was a slight fall of snow and severe cold weather, with ice formed, which continued about three days. The fruit of the Duchess was destroyed, and not only the fruit but many of the fruit spurs, and the black rosette of leaves may still be seen clinging to the trees. On such trees we do not find twig blight to any extent, but the injury to the fruit spurs will require several seasons growth of wood and development of new fruit spurs to repair.

On standard Bartletts, which made vigorous growth the past year, over seven years planted, and Dwarf Bartletts ten years old, the twig blight has been most severe and confined mostly to one and two-year-old wood on all parts of the tree, the tender suckers and water-sprouts accidentally left in the winter pruning suffering especially. The size of the blighted limbs may be estimated from the fact, that the ordinary grape-pruning shears has been sufficiently strong to sever the blighted limbs in most cases, though now and then the saw was used to cut an entire limb from the trunk of the tree.

The following kinds have to this date (June 22d) escaped blight entirely: Seckel, Bartlett standards under six years old, Beurre Clairgeau, Hosenschenck or Moore's Pound, Dana's Hovey, Flemish Beauty, standard and dwarf Duchess (except the fruit-spur blight mentioned) Clapp's Favorite on converted trees, and generally, I may add, all the top-grafted pears and apples have had no twig blight.

The blighted limbs frequently contain fruit, sometimes shriveled; at other times, where the circulation has not been arrested or materially perverted by the disease, the fruit is healthy but small in size.

Clapp's Favorite on standard trees loaded with fruit has blighted badly, while on the same variety on converted trees not yet in fruit not a single dead, black twig is to be seen. Buffum, Vicar of Winkfield, Edmunds and Howell are among the worst sufferers from the disease in the dwarf orchard, while Easter Beurré, Doyenne D'Eté, Dwarf Seckel and Parsonage have escaped entirely.

Apple trees have been attacked to some extent, although the disease has been almost entirely confined to the twigs and past year's growth. The line of demarcation between the blighted and living wood is frequently very clearly defined, and new shoots several inches long are often seen and serve as a guide to the proper point of amputation.

It may not be improper to remark that this orchard is on well-drained fruit soil, and until the present year has enjoyed almost entire immunity from the disease. One-half of it is in clover sod a year old, the other half was ploughed in February, and clover and grass seed sown this spring. The dwarf orchard was cultivated until June of the past year, then sown in peas. It had not been cultivated the present year until the

blight appeared; then it was put in order and again the strips between the trees sown in field peas.

In the standard pear orchard the blight, with the exception of ten standard Clapp's Favorite, is much *less* severe and prevalent where the clover extends than on the land in cotton the past year where the trees made most growth and had the most tender shoots.

It will readily be inferred from the above observations and statement of the facts that my impression is, *the cause of the outbreak of the disease is entirely due to the sudden atmospheric variat ons of temperature* to which the trees were exposed at a time when all nature was awaking from winter's sleep.

Why did the young Bartletts on the same location and soil escape, when those of a size to bear and have produced two boxes per tree suffered severely? One had matured wood, the other had not. Those trees which grew very little the past year in the same row, escaped the disease entirely. NANSEMOND.

Chuckatuck, Va., June 22, 1876.

The Nansemond Beauty.

From Messrs. Franklin Davis & Co., Richmond, Va., we have received a colored plate of this apple,—a new variety referred to by a correspondent in the April No. of the *Farmer*, and which is now being propagated in their nursery. The fruit is certainly very beautiful if the plate correctly represents it, and that it does so is certified by a number of persons who have compared it with the original. Its color is a brilliant red, with a few black dottings and a little splash of rich yellow. An indication of what is claimed for the variety is found in the description that "it is said to excel the Winesap in beauty, size and keeping"—the Winesap being, in the estimation of this firm, the standard of all good qualities of the apple.

Vineyards Overbearing.

Mr. F. R. Elliott, in the *Western Farm Journal*, has the following to say on this subject:

There are persons who believe in permitting the vine to set and ripen all the fruit it will; but whenever we have watched such practice, it has resulted, within a few years, in either mildew of leaf and fruit, rot, or an imperfection of one-half the berries on the bunch.

Our oldest and most experienced vignerons, those who have unwittingly practiced a year or two of overloading vines, find in the study of vegetable physiology, and the natural laws of life and health, that an undue exhaustion of the system must, if continued, soon be followed by disease or premature death. Acting upon these teachings, the true vineyardist—he who *owns* his vine and expects to continue yearly gathering the fruit therefrom—will now go over them carefully, note the strength of the vine, and judging with good common sense knowledge of supply and demand, remove at once all apparent superfluous or overloading number of bunches while they are yet but in the blossom, and have not drawn from the regular supply food belonging to the vine. Young vines are especially injured by allowing them to fruit freely, and many a one, because his canes are good and strong the second year from planting, permits them to fruit eight or ten bunches, and thus reduces their natural amount of vitality not yet fully gained or matured. In vegetable life an over-exhaustion, while the plant is young and immature, is just as permanently injured as overworking, or in any other way exhausting the natural system of animal life before it has reached maturity.

Fruits at the Centennial.

The strawberry show began June 10th. *The Germantown Telegraph* says the exhibit was not as large as it should have been, but it was much more extensive than is usual at our regular pomological shows. Collections were shown from the District of Columbia, (by John Saul,) from New Jersey, and the vicinity of Philadelphia.—The Wilson's Albany, Boyden's No. 30, and Jucunda, seem to have been the most superior samples shown, although a number of new varieties were offered for inspection.

An exhibition of apples, principally from Iowa and Michigan, and Australia, has also been held. Specimens of fruit preserved in fruit rooms were also shown, and the display exhibited many points of interest. Other displays of early vegetables have been made from Bermuda and Florida; of tropical fruits from the West Indies, &c. The general display of Southern pomological products is set for the 18th instant.

Floriculture, &c.—July, 1876.

By W. D. BRACKENRIDGE, Florist and Nurseryman, Govanstown, Baltimore county, Md.

Some of the old-time hardy herbaceous plants are not easy to beat by any of the modern introductions, as objects of ornament at this season of the year, for flower-garden decoration; and solitary specimens of such as we are about to enumerate are only occasionally met with in gardens the owners of which either were or are desirous to be counted among Flora's votaries.

The first of these which claim our attention is Valeriana rubra—a plant of easy culture, and of a branching habit, producing a profusion of cymes of red flowers, during the summer and fall months, and well adapted for making up table bouquet. There is also a white-flowered variety, which does not prove quite so hardy as the original. Next we have Achillea Ptarmica, flora pleno,—or double white-flowered Sneezewort; this, when once established in a rich loamy soil, will keep spreading and producing its corymbs of pure white flowers from June to such time as frosts set in; and in hot dry weather, for making up wedding and funeral bouquets, we know of nothing to beat it. As a good blue summer-flowering plant, there is the old Delphinium grandiflorum, a Larkspur from Siberia and China. Of this there are several garden varieties of different shades of color—some of them double, and all of them producing a charming effect, particularly when planted out in clumps. We would also here enumerate the Platycodon (Campanula)

grandiflora; this will continue to produce its broad-expanded blue or white flowers during July and August, and for effect is only surpassed in its kind by the double white-flowered Campanula persicæfolia. The double variety of the very old Lychnis Chalcedonica—so common in gardens—is, after all, not a plant to be despised; neither are the double varieties of the Spiræa aruncus and S. ulmaria; and the only objection we have to the last three is, that they continue so short a time in bloom. But as a new article of this class of plants, which blooms with us at least three months, is the golden-flowered Rocky Mountain Columbine, having spears about two inches in length; its rich golden color and prolonged period of bloom constituting it one of the most valuable plants that have of late been introduced into our gardens. We have raised several fine varieties between this and the Aquilegia cærulea; which last is also a very beautiful plant from the Rocky Mountains, but remaining, unfortunately, only a short season in bloom.

On a former occasion we suggested as pretty objects for a lawn the forming into bushes a few of our most marked creepers, as Lonicera Douglasii and Wisteria Sinensis and W. magnifica. This is effected by training a single stem to a stiff stake, and when the vine is 3 to 4 feet high pinching off the point, which will cause it to throw out lateral branches; these, when they begin to ramble, should be pinched back again; this will form a head of flowering twigs; and in one or two years the stem will be stout enough to stand without support.

There is a multiplicity of odds and ends to be attended to in the summer treatment of an ornamental garden; but, first of all, cleanliness amounts to almost a sort of godliness in such affairs; and this is only in a great measure effected by use of the mower, hoe and rake, in keeping down weeds and holding the surface open,—which last is, after all, the great vivifier of out-door tender plant culture, as preventing suffering from long droughts, and admitting rains freely to the roots. A good look-out should also be had that strong growing plants do not over run weaker ones, by topping back or tieing up the same; and this sort of care will be brought often into requisition where the system of ribbon planting is practiced.

The trimming of ornamental hedges, if it has not been attended to, can yet with propriety be performed.

Greenhouse.

The great majority of plants that require to be kept under glass during summer will need a partial shade, either by blinding the glass with an adhesive wash or by screens of oil-cloth. Humidity is another element desirable for indoor culture; and this can in a measure be effected by frequent syringing and keeping the floor of the house damp.

All such plants as Gloxinias, Achimenes, Caladiums, Calocasias and Ferns, we find by long practice do best when grown in well-drained shallow broad pots, or pans as they are often called; these plants being what are known as surface feeders: while Palms, Marantas, Dracænas, and plants of a similar habit, do better in deeper pots and a stiffer soil.

Yucca Filamentosa.

Here is a description, the author of which is unknown to us, of a plant which is one of our great favorites and which has more than once been referred to and figured in the *Farmer*.

On our own place the most striking floricultural objects just now are several Yuccas with flower-stalks quite six feet high, in full inflorescence, and a plant of the Clematis Jackmani also in abundant bloom, entirely covering a pillar some fifteen feet high and displaying hundreds of its brilliant purple flowers, all open at once, and innumerable buds. Both of these plants are entirely hardy, showing that the effective adornment of the flower garden is entirely independent of the resources of a greenhouse.

This plant is one that improves on acquaintance. We never thought much of it until we used it at home, and now its loss would be severely felt. It is the last plant we should use in symmetrical plots, or among flowers whose attractiveness depends in part upon a precise arrangement and uniformity of size. We first recognized its fine adaptability to certain situations upon seeing it in large plots along one of the lake banks of Central Park. It there looked to be the right plant in the right place, and imparted a wild, half-rugged, picturesque beauty that few other hardy plants could supply. As an undergrowth in shrubbery borders—or planted between Pines and Spruces, as we have seen them—the evergreens planted rather closely together so as both to conceal the property line and serve as a wind-break—or clumped here and there in the wild garden, they are very effective. Wildness is the Yucca's charm, and it suffers the moment it is placed in the company of flaming colors or "tropical amplitude of leafage."

Its pagoda-like inflorescence is very fine, and may put to blush a hundred petted hot-house things that need to be washed, smoked, forced and rested throughout the year. It is borne upon a scape four to six feet high, in a pyramidal panicle of simple racemes. The color of the bell-shaped flowers would be white but for a slight tint of green. The plant is nearly acaulescent, and its lower leaves rest upon the ground, while the upper ones are more upright and clustered as in a rosette of spikes. These leaves are a perfect evergreen, and retain a fresh color through the most trying vicissitudes of winter.

Unless it is desired to save seed (which germinate readily) it is best to cut out the scape as soon as the flowers have disappeared—since the dry, oblong pods are unsightly.

We have never found that it is particular as to soil or situation, thriving with us both in sandy and in wet places. It is a splendid rockery plant, and in summer plots harmonizes well with Sedums, Aloes, Cacti—or, among hardy plants, with the dwarf evergreens—with *Aralia spinosa*—the hardy grasses and ferns. Here we have an evergreen, perfectly hardy—enduring at least twenty degrees below zero without injury—that bears in summer hundreds of flowers more beautiful than most hot-house subjects—that is easily propagated—that will stand storms, winds the fiercest, heat, drouth, moisture; and yet we seldom meet with it.

Agricultural Calendar.

Work for the Month—July.

The securing of the ripened crops is now in order, and we greet all our friends with hopes for their enjoyment of abundant harvests.

Wheat Harvest.—The wheat will have been secured in most sections before this number of the *Farmer* reaches its readers; but where any steps remain to be taken let them be immediately attended to, that it may run no risk after the pains and expense of gathering the crop. Where it can be threshed without putting into sacks or the barn, so much the better.

Cultivation of Corn.—If not ready to lay by, active work with the cultivators will be needed. The season, so far, in most sections has been so favorable that the crop is fairly advanced, but, as a rule, the drier the season the greater the need for frequent stirrings of the soil. We are ourselves great advocates of this being shallowly performed, as tending to keep the soil in the best condition for aëration, and for preserving in the lower strata the greatest amount of moisture. We are not unmindful that some of our not least intelligent farmers practice, and are able to give a reason for their practice, deep plowing at the last working; but this "vast pruning" of annual plants is a process not likely, as we think, to prove safe in the majority of cases. In the Gunpowder Club's proceedings, elsewhere reported, some good suggestions on corn culture will be worth attention.

Hay Harvest.—Timothy ought to be cut when the seed is in the milk state, as it then weighs heavier and is more nutritious. It does not require long exposure to the sun, and the quicker it is dried the better is its quality. After letting lie for a few hours, it should be put into medium-sized cocks to go through the sweating process, and, as soon as this is completed, put into stack or barrack.

Millet and Hungarian may still be sown up to the middle of the month. A good soil naturally, or one liberally manured, deeply plowed and in good order, will produce an abundant crop of either of these useful forage crops. We hope by next season to hear from those who have tried it of their experience with German millet.

Fodder Corn may be sown up even to the end of the month. We adhere to our recommendation to sow in drills and to give it one or two workings with the cultivator. The only reason why more persons do not raise this crop for winter use seems to be the difficulty they experience in saving it. We cut it with a scythe when the pollen is falling thickly from the tassels or when the ears are about forming, allow it to lie a day on the ground, then put it against a fence in layers a foot or so thick. It will cure in a week or less, but may remain a month or more if desirable.—The layers must be thick and they may be gradually increased if found more convenient by putting the corn up thinly at first and adding other layers afterwards. It then comes sweet and green, free from mildew and dust.

Buckwheat is best sown about the middle of the month. Put your land in good condition, apply 150 lbs. of a good super-phosphate, sow from half a bushel to three pecks of seed, harrow it in and roll.

Tobacco now needs careful working, that the grass may be destroyed, and the land left clean and porous.

Fall Potatoes should be kept clean; no other crop suffers so much from neglect. Keep the soil light and clean, and if practicable give one or two top dressings of a mixture of ashes, salt and plaster: say a bushel or two to the acre.

Turnips.—Ruta Bagas may be sown up to the 20th of the month. Endeavor to secure quick germination by sowing just before a rain. Flat turnips may be put in from the 25th of this to the same date of next month. Those sown earlier produce more, but they are not such good keepers. A good sandy loam is the soil best suiting them, and new land is especially favorable. Ashes and super-phosphates seem the natural fertilizers, and the ground should be in thoroughly good order. As soon as it is ready the seed should be sown, as it then gets an earlier start from contact with the moist freshly-turned earth. These turnips are usually sown broadcast and brushed or lightly harrowed in. The fly is sometimes very destructive and especially so where turnips have long been grown. Dusting ashes, air-slaked lime, or plaster over the plants, will often succeed in ridding them of this pest; but the best preventive is to give the plants a push, which will soon bring them into the rough leaf, when they are safe.

Root Crops of all kinds ought to be often and well worked, that the nourishment which should go to them is not appropriated by weeds and grass.

Meadows to be set in August ought to be made ready by thorough and deep plowing and frequent harrowings, that the finest tilth of soil possible may be secured. An application of say twenty bushels of ashes, two of salt and a hundred and fifty pounds of bone-dust to the acre will prove effective on soils of even medium crop-producing capacity. Where timothy is sown alone, a peck to a peck and a half of seed will do for an acre. The better the soil is prepared the less seed is required.

Live Stock needs some extra care and attention now; see that working animals are regularly fed and watered. Put tar in the sheep's troughs to protect them from the fly. Give hogs green food or by preference the run of a clover field.

Fences should now be looked over and needed repairs made, and all the corners cleaned out.

Vegetable Garden.

July.—Put in late crops, such as cabbage, spinach and turnips, in all spaces left vacant by the maturing of other crops, instead of permitting them to be taken possession of by weeds. Remove to the compost heap all rubbish and remains of crops, and do not let the garden be disfigured by them.

Beans may still be planted on rich ground, and cucumbers, for pickles, should be sown at once. The first planting of celery will need earthing up, when care must be taken to keep the earth out of the hearts of the plants, as this produces rust. When practicable give the later

plantings plenty of water; keep cabbage and cauliflowers well worked, and draw the earth up to them, Lettuce for fall use may be sown on rich ground, and spinach may be sown in drills 16 inches apart.

Poultry Yard.

Best Breeds of Fowls.

There can be no possible doubt but that cross-bred Game and Dorkings are infinitely superior as table fowls to Brahmas or Cochins. A Game cock and Dorking hens will produce early-maturing birds, taking size and quality of flesh from the mother, plumpness and hardihood from the sire, whilst there will be a striking absence of offal, arising from the smallness of bone. I commenced keeping poultry in December last, and hearing, or rather reading, so much in praise of the famous Brahmas, I procured eight pullets and a male bird of the best prize strains; but having always had a fancy for Game fowls, I also bought sixteen Game hens and pullets. I may mention that I obtained the fowls from several different sources, so that they may be considered fair representatives of their respective breeds. Now what is the result? The sixteen Game hens have laid 202 eggs, and are now laying at the rate of 8 daily, while the Brahmas have only laid 20 eggs, and for some time past have laid none; besides which, they are in comparatively bad condition and scraggy, whereas the Game are plump and fit to kill, although they all receive the same treatment, and have the run of the farm. I am sorry to say that I am not the only one who has been disappointed in the Brahma as a farm-yard fowl. Several of my friends have found both Game and Dorkings, and especially a cross between the two, better and earlier layers than either Brahmas or Cochins, and as table fowls no one doubts the superiority of the former. It remains to be proved whether the Game chickens thrive, and the hens lay as late as the Brahmas, but I shall report progress to you at the end of the year. In the meantime I am decidedly in favor of Game and Dorkings as farmers' fowls, and I have written this letter that others may not be deceived, like myself, by the prominence given to Brahmas at the Crystal Palace and other shows, and in the hope that our agricultural societies may rather encourage useful breeds than mere fancy birds in every way their inferiors.—*Agricultural Gazette.*

Barn-yard Fowls.

Some good farmers think the common barn-yard fowl just as good for profit on a farm as fancy varieties. Upon such we wish to impress the necessity of constant selection each year of those to be kept for future breeding. One who would follow this rule for ten years should have a flock of fowls fit to exhibit, and his profits during the ten years will have been much greater than by the common plan of keeping any fowls you may happen to have. The flock is reduced every year by killing; let those for market always be the most undesirable in form, etc.; retain those that have been the healthiest, hardiest, most thrifty growers, and the finest in form.—*Western Rural.*

Raising and Picking Geese.

In a late number of your valuable paper, a young farmer wants the advice and experience of some person who has had experience in raising and picking geese. I am now nearly sixty years old, and have raised and picked geese ever since I was large enough to hold a goose in my lap. I will give you the results of my experience. In the first place I try to keep my flock as near equal as possible (as many ganders as geese,) so that they will mate equal in the spring. Geese are not like other fowls; every gander has his own mate, although sometimes one gander will have two geese, and one goose will have two ganders. Geese are very easily raised, requiring but little attention. After the goslings are a week old, feed them on corn-meal dough, with a little salt in it, until they can eat young grass. Care should be taken to give them shelter from hard rains, as they are easily drowned previous to the time they begin to feather. They want nothing but grass and water in the summer. Feed grain in winter, and they are all right. In the picking process, I pick about every seven weeks, if the feathers are ripe, which can be told by catching one and plucking a few feathers from it; if the quill of the feather is clear, they are ripe; if the quill is full of blood, they are not ripe. Pick nearly clean in warm weather, but in winter not so close. Care should be taken to give them warm shelter in winter after picking. Pick all the small feathers and leave all the large ones, except four or five under each wing, which must be plucked, or the wings will droop. The yield of feathers will be about one-quarter of a pound to the goose each picking, when full feathered. —*Cor. Rural World.*

The Apiary.

How to Make Artificial Swarms.

Editors American Farmer:

From parent hive (No. 1) take five combs of honey and brood, putting them into an empty hive (No. 2) alternately, with empty frame, first brushing the bees off into hive No. 1. Now from parent hive No. 3 take the queen, putting the comb on which you find her with the bees on it in No. 3, with one of the full combs taken from No. 1,—the object being to allow no hive without a queen to build comb. Remove No. 3 from its stand and put No. 2 in its place and the artificial swarm is made. D. M. WORTHINGTON.

Baltimore, June 3, 1876.

How to Secure Premium Honey.

Dr. P. A. Baker, in the *Beekeeper's Magazine*, publishes a plan to secure the largest quantity and the best honey. The plan is simply to keep a very strong colony queenless during the greatest flow of honey. All apiarians know that a virgin swarm will work with more energy in building comb and storing honey, than one with a full supply. It is not uncommon for strong families, with everything needful for storing honey in surplus boxes, to loaf about the hive, until a few empty frames are given between the

full ones, when they will soon be filled; but, being in the queen's chamber, she immediately performs her maternal duty, and you get no honey. The law is immutable, in their allowing no empty space between broad combs, and the law impelling the bees to fill the space with comb, acts with like force in indicating to the queen her duty. By virtue of cause and effect, if the entire hive is made into space, it is but fulfilling that law for the bees to promptly fill it with comb and honey, if, perchance, it is in abundant supply, but madam queen being present, we must allow a considerable force to assist in attentions to her royalty; dethrone her and supply the colony with material to make a new one, and yet allow none to mature for a period, and we shall have our boxes filled with the beauteous nectar. The operation is to put two large swarms, without queens or comb, into a hive filled with empty sectional frames or honey boxes, and give one broad comb at one end of the hive, and before the new queen is hatched, remove the comb and give them another. When the second has become fertile, the greatest flow of honey being over, remove the honey frames or boxes and fill the hive with combs or empty frames, as the fall season for honey may indicate. The queens and broad combs can be utilized to advantage, which any intelligent apiarian will understand.

The Grange Not Partisan.

From a declaration of the purposes of the Grange, we take the following as pertinent to the present season of political fervor, and as sound always:

We emphatically and sincerely assert the oft-repeated truth taught in our organic law, that the grange—National, State or subordinate—is not a political or party organization. No grange, if true to its obligations, can discuss political or religious questions, nor call political conventions, nor nominate candidates, nor even discuss their merits in its meetings.

Yet the principles we teach underlie all true politics, all true statesmanship, and, if properly carried out, will tend to purify the whole political atmosphere of our country.

For we seek the greatest good to the greatest number. But we must always bear in mind that no one, by becoming a grange member, gives up that inalienable right and duty which belongs to every American citizen—to take a proper interest in the politics of his country.

On the contrary, it is right for every member to do all in his power (legitimately) to influence for good the action of any political party to which he may belong.

It is his duty to do all he can in his own party to put down bribery, corruption and trickery; to see that none but competent, faithful and honest men, who will unflinchingly stand by our industrial interests, are nominated for all positions of trust; and to have carried out the principles which should always characterize every grange member; that the office should seek the man, not the man the office.

We acknowledge the broad principle that difference of opinion is no crime, and hold that progress towards truth is made by differences of opinion, while the fault lies in bitterness of controversy.

We desire a proper equity and fairness; protection for the weak, restraint upon the strong; in short, justly distributed burdens, and justly distributed power. These are American ideas—the very essence of American independence, and to advocate the contrary is unworthy the sons and daughters of an American republic.

We cherish the belief that sectionalism is, and of right should be, dead and buried with the past. Our work is for the present and future. In our agricultural brotherhood and its purposes, we shall recognize no north, no south, no east, no west.

It is reserved by every Patron, as the right of a freeman, to affiliate with any party that will best carry out his principles.

An Agricultural Sermon.

This is the way the venerable Dr. Lee, agricultural editor of the *Nashville American*, preaches from the text furnished by one of our correspondents:

A Maryland farmer writes to the *American Farmer*, which has been published in Baltimore fifty seven years, to preach an agricultural sermon in its ripe manhood, suggesting as a text the following words: "Let farmers and property-holders do their own thinking, and commit to no other profession the duties they should perform themselves. The great curse of the country is the entire delegation of public duties to lawyers. There are forty thousand lawyers in the country, one hundred and ninety-eight of whom are in Congress. There are two million five hundred thousand farmers, and only eighteen of them are in Congress."

We agree with this Maryland farmer that the above facts should be pondered, and carefully weighed within the gates of every Grange in this nation of farmers. We have not a particle of prejudice or unkindly feeling toward lawyers, or any other class of citizens. But, if the agricultural mind of the country is too weak or stupid to represent the farming interests in all State and Federal legislation, this fact presents a powerful reason for the prompt removal of such discreditable weakness and stupidity from the owners and cultivators of the soil. Washington, our first P esident, was a farmer. Did he manage our public affairs so badly, that of all the millions of farmers that have since lived in the United States, not another man of his industrial calling can be elected Chief Magistrate of the republic? Every industry naturally requires appropriate industrial training and thought. Lawyers and military men have very little of this useful discipline on the farm, or in the workshop or factory. Their mental and physical training have been elsewhere. In plain truth, they are not educated to represent fully agriculture or manufactures as a calling or a profession. Our agricult :re is grossly misrepresented in Congress by the oversight of farmers.

Raising Clover Seed.

The Register of Rural Affairs, edited by John J. Thomas, gives the following on raising and saving clover seed:

The first requisite is to have a good field of clover, sown on clean land, clear of weeds. This will make all difference between clean and foul seed. Some weeds are comparatively harmless, while others may take years to eradicate. The next year after seeding the field to clover, let it be cut down closely about the time of its first blossoming, which at the North is about the middle of June. It may be cut for hay, or it may be pastured closely. The first mode is rather the most reliable. A second growth will spring up and bear an abundant and even crop of blossoms, which will ripen seed early in autumn. The proper season for cutting is indicated when most of the heads have become brown. There are different modes used for cutting. One is to cut the crop with a mowing machine, raking it into quite small cocks, the drying being assisted by occasionally turning them over, as examination may indicate. Another and more systematic way is to take a combined mowing and reaping machine, put on the platform, sharpen the knives well, and then with a good hand-rake keep the cut crop on the platform until there is enough for a large bunch, when it is pushed off. At the next passing drop a bunch at the same place so as make windrows. When partly dry, cock it and let the drying process be completed as already described. This plan obviates raking and leaves the crop in better condition. Draw it in on a dry day and thresh it at the proper time with a clover huller. When a mowing machine cannot be had, the crop may be cut slowly with a scythe. If a clover huller cannot be procured, let the hay become quite ripe, and, if it has been wet, it will shell the better, and resort to the more imperfect mode of threshing and passing through the fanning mill. The threshing is, of course, most easily and perfectly performed in sharp, frosty weather.

Premiums for Tobacco in Virginia.

The Virginia State Agricultural Society will award at its Fair next fall very handsome premiums for exhibits of Tobacco, amounting in the aggregate to over $1,500. For English shipping, four prizes of $200, $100, $50 and $25 will be given, and the same for Continental shipping. For the best dark wrapper $150, $75, $50 and $25 for the second, third and fourth grades. For best bright yellow wrapper, $150 and $75 and $50 for the second and third. Prizes of $75 and $40 will be given for the best and second best filler, and for the best and second best bright smoker.

The following regulations must be observed: Hogsheads of the two first classes must weigh not less than 1,300 pounds net. Dark wrappers, not less than 1,000 pounds. Fillers and smokers from packages of not less that 500 pounds net. Bright wrappers from packages of not less than 150 pounds.

It is desirable that the tobacco be all sampled in Richmond, but samples may be drawn in any of the tobacco markets in the State, where the tobacco is offered for sale, and if not by a sworn inspector, then the samples must be authenticated as to ownership, weight, &c., by two credible witnesses, who shall certify the same before a notary or justice of the peace.

Entries must be made at the office of the Secretary of the Society prior to the 1st day of August, and the owners of samples must make all necessary arrangements for their preservation, produce them at the time called for by the judges of awards, and take care that they be on exhibition at the Fair.

It is also provided "that the tobacco from which such samples are drawn shall be, at the time of such drawing and offering, the property of the planter, who alone shall be the recipient of such premium."

The Southern Planter says in noticing the above:

Everything indicates that we are going to have such a Fair this year as we have not had since the war, and we trust that the public-spirited people in each county will make its success their own especial business, and see that their neighbors and friends do fully their part.

An Enterprising Manufacturer.

Mr. A. B. Farquhar, proprietor of the Pennsylvania Agricultural Works, which were destroyed by fire on the 7th of May last, causing a loss of some $115,000, upon which there was an insurance of only about $25,000, writes us that he has resumed operations, and employing nearly two hundred hands, is prepared to execute all orders promptly. He says:

"By July 7th, two months from the time of the fire, I expect to have the entire works completed and in full blast. The main building of the new factory is a fire-proof structure about 120 by 200 feet, with grouted floors and iron roof, shutters and doors, filled with the most improved labor-saving tools and machinery for manufacturing.

Adjoining this structure is a fire-proof four-story eighty feet front iron building, used for store room and offices, and connected by two railway tracks; about two hundred feet distant are the large shops, 100 by 250 feet, formerly owned by H. S. Myers & Co., lately purchased by me and added to my works; and these, together with the lumber yards, warehouses and railroad switches attached, constitute the most complete factory for the manufacture of agricultural implements in America, etc."

A special feature in Mr. Farquhar's business is the building of machines and implements adapted to use in the South, where his trade is widely extended. During and succeeding the panic of '73, when so many manufacturing establishments closed up, Mr. F. neither discharged hands nor shortened the working time of his numerous employees.

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Transient Advertisements payable in advance—all others quarterly.
Advertisements should reach us by the 20th of the month, to secure insertion in the succeeding issue.

JULY 1, 1876.

Advertising in the Farmer.

Mr. Z. C. Daniel, Twyman's Store, Va, writes us June 23d: "Allow me to return my thanks to you for the advertisement of my hogs, as I must say I have received more orders from my advertisement in your paper than from any other."

Prof. Riley's Eighth Report.

We are indebted to the author for a copy of his last Report on the Insects of Missouri,—a volume equal in value to any preceding it. The habits of the Colorado Potato Beetle, the Army and Canker Worms, the Rocky Mountain Locust, and the Grape Phylloxera, with collateral topics, continue to be examined with the usual acuteness of this distinguished investigator, and numerous suggestions made for the prevention of their ravages, or the destruction of the pests, when present. For the Potato Beetle, Mr Riley adheres to the recommendation of Paris Green as an antidote.

MR. WM. D. BRACKENRIDGE, the well-known nurseryman, of Govanstown, Baltimore Co., Md., and floricultural editor of the *American Farmer*, has been appointed one of the judges at Centennial Exposition, in the Horticultural Department, in classes from Nos. 700 to 714 inclusive. In a complimentary letter, asking his acceptance, the Chief of the Bureau says the selection was made not only on the grounds of eminent fitness, but also by the general request of the exhibitors themselves.

AN OMISSION.—By one of those accidents apt to occur in printing offices, but not frequent in the one where the *Farmer* is printed, the full page advertisement of the well-known house of Cromwell & Congdon, 51 Light street, dealers in agricultural implements, seeds, &c., and proprietors of the Patapsco nurseries, was dropped from its proper place in our issues both of May and June. It is now to be found in our supplement, and we direct the attention of our readers to the articles there offered.

Received.

From Robt. Manning, its Secretary, we have Part I of the Proceedings of the Massachusetts Horticultural Society for 1876, containing full and very interesting reports of the weekly discussions, with papers read at the meetings, &c.

From A. M. Garland, Secretary of the American Berkshire Association, A Premium Essay on the Origin, Breeding and Management of Berkshire Swine, by A. B. Allen, of New York. This essay is instructive and practical. A portion of its historical matter is transferred to our pages in another part of this issue.

From Jno. S. Reese & Co., general agents, we have "The Pacific Guano Co.," a well-written and handsomely printed illustrated pamphlet, giving a history of that company, with accounts of its manufactures and trade; of the exhausted guano islands of the Pacific; the phosphate deposits of South Carolina, and of the extent and importance of the Menhaden fisheries in furnishing ammoniacal material for fertilizing purposes.

From Geo. P. Rowell & Co., New York, the well-known advertising agents, "The Centennial Newspaper Exhibition, 1876,"—a volume comprising not only a complete list of American newspapers but a gazetteer of the towns in which they are published, with notes of their principal industries, characteristics, populations, &c., and descriptions of some of the best-known journals of the country.

Short-horn Sales.

The *Country Gentleman* reports sales at Toronto, Canada, of short-horns from the herds of Messrs. Cochran, Beattie and Hope, where the two cows Airdrie Duchess 2d and Airdrie Duchess 3d sold for $21,000 and $23,600, gold, respectively; the purchasers being Albert Crane & Son, of Kansas. Fifty-four head sold for $91,450, averaging $1,693.50.

Harvesting Machines at the Centennial.

The proposed competitive trial of agricultural machinery has been abandoned, but exhibitors desiring it may display their machines at work. The grass was to be cut June 26; the wheat will be July 5. Threshers and separators will be exhibited July 18, and for several days succeeding. Schenck's Station, fourteen miles from Philadelphia, is the place where the field display will be made.

The Agricultural Society.

From the report on another page, it will be seen that the proposition to accept the new grounds offered on very favorable terms by the Baltimore and Ohio Railroad Co., and to remove from the unfavorable and unsuccessful site at Pimlico, has been abandoned. It became evident that certain influences were opposed to it, and Mr. Davis, who had strongly urged the change, reluctantly concluded that, with so little active support, it was unwise to press it.

Mr. Davis thereupon resigned the presidency of the society, confident, as we presume, that he could do nothing further to make it successful.

We have no means of knowing what its future conduct will be. As we said last month, the society has had no hold, since its organization, on our farmers; and we were aware that its membership was extremely small. The discussion at the meeting of June 1st developed the further fact that the society, in effect, only exists in name,—all authority and functions resting in the executive committee, which elects itself and all the officers, and controls affairs generally. The title to the property at Pimlico vests in a number of trustees, and reverts to the State, city and private stockholders, in the event of no show being held for three successive years. Some of the stockholders claim that it would be incompetent for the society either to remove any of the buildings, or to sell the ground and buy elsewhere; but President Davis took positive ground against this assumption.

It was determined several months ago to hold no exhibition this year, and the expenses of last year's show have not yet been paid.

The decisions of the courts, sustaining the injunction against the payment of the annual appropriation of $2,000 from the city, diminishes the revenue of the society to that amount.

It is reported that the executive committee will probably elect Mr. Edmund Law Rogers president in the place of Mr. Davis. Mr. Rogers is a gentleman of great intelligence and energy, and with a great fondness for everything connected with agricultural matters. He has comprehensive views as to the management of such institutions, and he believes the location of Pimlico is not the cause of failure with the present society. Whether, holding that belief, he could rally around his administration of its affairs the farmers of the State, without whose active aid no society can exist, will remain to be seen.

An energetically and well-managed society, including men representative of the agriculture of all parts of the State, might be formed here. We should like to see Mr. Rogers, or any one else, make a successful and useful society. But to do this needs much more than a mere removal from one site to another. A change is required, not of location only, but of views, objects and management.

The Gunpowder Farmers' Club.

We had the pleasure of attending at the farm of Mr. Dickinson Gorsuch, the June meeting of this body, which has become one of the agricultural institutions of Baltimore county, and the reports of the proceedings and discussions of which, as recorded by its zealous and efficient secretary, are looked for by the readers of the *American Farmer* with as much interest as any other part of its monthly contents.

The influence of this association of farmers has been wide-spread and important. Not only has the stimulus to improvement been felt by its own members, but its example has been quoted and imitated abroad. That spirit of friendly rivalry engendered by comparison of views and processes has had the result in the membership of the Club of raising the average production of crops, from thirty to fifty per cent; and not only in our State but in others, near and remote, the doings of the Gunpowder Club are quoted as illustrative of what can be accomplished by intelligent, thinking farmers who take a pride in their occupation.

The members of the Club are, in the main, farmers of mature age, well settled and comfortable in their possessions, and mostly life-long tillers of the soil; but, a satisfactory and promising feature is the admission of younger farmers, who thus not only imbibe the "traditions of the elders," but are themselves, by the contact with older and more experienced agriculturists, better qualified to become, in turn, ensamples for imitation in their own respective localities. This mixture is an admirable one, deserving imitation in similar organizations.

The host on the occasion of the June meeting belongs neither to the old nor the young farmers. Mr. Gorsuch is in the prime of life, and is probably one of the best farmers in his county. He believes in his vocation, and in its progressive character. He closely reads of its advances made elsewhere, and is a constant experimenter at home. He is a farmer who gives his very best thoughts to his business: and, thoroughly posted in what is doing elsewhere, is ready

to follow good advice wherever found. Not too opinioned to learn, as a matter of course he is a regular and attentive reader of all the best agricultural journals published in the country.

Mr. Gorsuch's special crops are milk and hay, both of which are sent to Baltimore, from which city his farm is about twenty miles distant. Everything else, we believe, if we except perhaps a little wheat, is consumed on the farm. In addition to what it produces, considerable quantities of mill-feed and oil-cake are purchased. From the appearance of his herd we venture the opinion that Mr. D. is one of those rather inclined to consider the individual and the feed trough than the breed of his cows; though he prefers the Jerseys for cream, as of course, is natural, and is constantly infusing this blood into his dairy stock.

The strong point of this gentleman's farming is *Manure*. He believes in it, and the quantity made on the place would astonish any farmer who had not the faith he has in its own merits, and the merit of making the most of it. Yet he is an equally firm believer in commercial fertilizers, and the quantity of barn-yard manure saved and applied instead of leading him to consider them superfluous, seems only to stimulate to their greater use. He probably applies more artificial manures than any other member of the club, and he is clear in the expression of his belief that the condition of our agriculture is such that no enterprising farmer can afford to forego their employment.

Mr. Gorsuch is a believer, too, in improved implements. In tools and machines for preparing the land, as well as for cultivating and saving the crops, his aim is to get the best, and no testing or trouble seems too great for him until he is satisfied he is working with the most approved appliances to be found.

His farm comprises some 300 acres, and with the disposition and characteristics noted, it is not remarkable that it is well and successfully cultivated. At the meeting of the club, the inspecting committee carefully viewed the fields, the barns and herds, and if it is our good fortune to secure their report, we will take pleasure in laying it before our readers.

Of this class of men is formed the Gunpowder Club. Is it, then, surprising or remarkable that it has during its existence helped to build up the waste places, to stimulate improvement, to encourage generous emulation, to increase production, and not least of all to magnify the independence, dignity and profits of the profession of intelligent active farmers?

The condensed but effective report given on another page of the discussion at this meeting of the club, furnished us by the courtesy of the secretary, renders unnecessary any detailed account by us of its proceedings; and a reference to the clear and well-expressed reasons guiding the experienced and thoughtful farmers of the club in their operations, will not only bear out our statement that they are men alive to progress and thoroughly posted as to the demands of their calling, but it will likewise give an epitome of the most reliable and successful modes of profitably managing the corn crop—the topic then especially under review.

The State Agricultural Society.

The meeting called for the 1st of June by President Davis, was not largely attended and the persons present were mainly business men of the city, the farmers being slimly represented. Upon calling the meeting to order, Mr. Davis addressed it on the subject of the proposed change of site of the Society. He said, in effect:

In fixing a location for a State Agricultural Society, regard ought to be had to the character and convenience of those for whose benefit the Society is founded. Our farmers are not now, as formerly, what was called "gentlemen farmers," who could come to Baltimore during the Fairs and spend a week at Barnum's, leaving their overseers at home, while they enjoyed the luxury of the city and the relaxation and association which such a season afforded. That time has passed. Our farmers of to-day are men of toil, who follow the plow from sun to sun—who with their own hands do their own work. He is not a wise man nor good legislator who does not understand and properly appreciate the condition and character of the people for whom he is to provide. This is, and ought to be, the first consideration; and it is because I see so plainly that Pimlico, which was well suited to a former period and a special class, is not the place for the farmers of the present day, for whose benefit this Society was founded, and endowed by the State, I therefore felt it my duty, the moment the opportunity was presented and the Patapsco grounds were open to us, to call this meeting to give the people both of town and country the opportunity of expressing their sentiments and wishes upon the subject. It is not only (though that is a sufficient reason) that the Patapsco grounds are so much better adapted to the purpose, so much more convenient and acceptable to the people of Baltimore and the farmers of the State, but from the further and most important consideration, that it is the best location for an Inter-State association to be found in the Union: almost under the shadow of the National Capital, with our railroads and free water communications stretching into the very heart of three of our largest and richest States, and through them to a third of the Union.

There are now from six to eight million of people holding close commercial relations with our great commercial emporium, and this number is every day growing. Their commerce and population pass directly by the grounds proposed for this association. Does not this fact add immensely to the value and desirableness of the location? It is unnecessary to recall, and I am sure I should fall short of enumerating, the many advantages such a position would bring the Association, when once established, as it ought to be upon a broad, liberal plan. Nor is it of small advantage to have linked with it in sympathy and interest two such powerful corporations as the Baltimore and Ohio and Baltimore and Potomac Railroads. This circumstance alone ought to determine the question, but when added to the other considerations to which I have adverted, it seems to me, it leaves the unbiased mind without an excuse to hesitate a moment as to the policy and wisdom,—nay the duty,—of accepting the offer and making the transfer from Pimlico to Patapsco.

To those members of the Association who think we are irrevocably bound to Pimlico without the ability to change, I will only say that such is not the fact; and even were there legal difficulties, there is not the shadow of a doubt that the Legislature could easily be induced to make, if necessary, such modifications of the charter as will at once relieve the Association of any complication, if any is found to exist.

For myself, I believe the Association must undergo complete dissolution unless there is a change of soil and location. Seven years' experience has demonstrated the Society has not been successful or prosperous, and some think it must sooner or later be wound up. I believe the change proposed would revivify it, and I now submit the question to the wisdom of the meeting.

Mr. Wm. Devries, Jr., wanted information about the cost of removal, where the money was to come from to even surround the grounds with a fence; and he also wanted to know whether this subject had not already been referred to the Executive Committee.

President Davis said the Executive Committee had the subject under consideration, and had appointed a sub-committee to inspect the grounds offered, and that he had called this meeting with a view to eliciting such an expression of opinion from those interested, that the Executive Committee might be aided by it in arriving at a conclusion.

Mr. D. Lawrence, of Howard Co., said he was not now a member of the Society. He thought further work in the ranks was futile; but seeing the call of the President, he had responded as an individual farmer, and he expressed the sentiment of the press, the farmers and the exhibitors of Maryland, in saying that the disadvantages of the present location are such that a change is not only desirable, but absolutely necessary.

Mr. Devries wanted to know whether the President did not think it would be proper that the gentlemen who originally selected Pimlico should be consulted before any change was made, and the President replied that he was himself one of those who originally voted to go to Pimlico, and that having now found he had made a mistake, he wanted to make amends and effect a change.

Mr. Devries thought the farming interest was not able to do anything; that it was the extreme poverty of the farmers of Maryland that kept them from coming to and participating in the shows.

Mr. Richard Maynard said there was a lack of sympathy with the Association. Even the neighboring farmers did not attend the shows at Pimlico, and he often had with the greatest difficulty succeeded in making up the necessary committees of judges to award the prizes.

Mr. C. I. Ditty said there was not a person in the community but knew the difficulty of getting to Pimlico, and this was as nothing compared to the difficulty of getting away, and he thought all present were agreed as to the advantages offered by the site now proposed, and to give expression to these views he submitted a resolution that it was the sense of the meeting that the change proposed was desirable, if not absolutely essential to the existence of the Society, and requesting the Executive Committee to take steps looking to such a change, if practicable, and to report at an early date.

The resolution was adopted without any dissent; but there immediately sprang up a desultory debate as to the respective authority and powers of the Executive Committee and the Society.

Some of the gentlemen present seemed of the opinion that the Society could not instruct the Executive Committee to make a report, or to do any other thing.

Mr. R. W. L. Rasin inquired whether the Society was the creation of the Executive Committee, or whether the Committee was the instrument of the Society.

Mr. Ditty said he had no doubt the action of the Executive Committee would be final and conclusive, as practically they owned the grounds.

Mr. J. L. McLane, who was requested by Mr. Devries to give an opinion as to the power of the Society to remove from, or hold a show elsewhere than at Pimlico, declined to do so without having the charter before him, but thought the Society could hold an exhibition wherever it pleased.

Considerable more discussion, rather rambling, was had and the meeting adjourned.

The Executive Committee of the society held its regular meeting on the 6th. Mr. Davis, chairman of the sub-committee appointed to inspect the Patapsco grounds, submitted a report stating that they, under charge of W. N. Bowling, engineer of the railroad company, visited the grounds, and were landed there in ten minutes after leaving Camden station. The location they found directly between the junction of the Baltimore and Ohio, Baltimore and Potomac railroads and the Patapsco river. The committee regarded the grounds a most eligible and advantageous site, offering easy and rapid communication both by land and water with every portion of the State, District of Columbia, the adjacent States of Virginia, Pennsylvania and Ohio, and the city of Balti-

more,—the great centre of commerce for a very large portion of these States, as well as others more remote. Reference is made to the advantages of the ground for track, for boat-racing, and for contests for amusement, experiments, &c. The facilities for approach and departure are superior, ample and unequaled,—the Baltimore and Ohio and Baltimore and Potomac both running to the grounds,—and the grounds can be secured at one-third the cost of Pimlico,—a price within the present available means of the association. Yet, with all these advantages and inducements, sufficiently published and made known, the committee say that they are constrained to report that they do not find either in the city of Baltimore or State at large any sufficient co-operative response or interest in the subject to justify or warrant the undertaking, and the purchase or lease of the property, desirable as they consider it, is inexpedient, and they ask to be discharged from a further consideration of the subject. The report was accepted and adopted. A letter was read from Mr. Davis tendering his resignation as president of the association, which was accepted.

Hygiene.

The Wastes on the Farm.

Alex. Hyde, in the *N. Y. Times*, has the following remarks on a subject of much importance, and upon which we, in a former number, give some valuable suggestions:

What to do with the waste water of the sink and wash-tub is one of the problems of country life which is not fully solved. It is too valuable to be lost, and too unhealthy to be kept near the house. To throw it, as many do, from the kitchen door, and leave it there to contaminate the air, is tempting the grim messenger Death to shoot his fatal arrows. If death should ensue, there should nothing be said about the mysterious Providence. The only mystery is that more sickness and death do not result from the malarious atmosphere of the surface cesspool.

Probably the best mode of ridding the premises of miasm from sinks is to conduct the waste water in iron or cement pipes to a cesspool some distance from the house, and keep this pool well filled with some absorbent, such as dry muck, fine charcoal, or loam. The sink itself should be of iron, and furnished with a valve outlet, so that the gases from the pipes cannot return into the house. A wooden sink is apt to become saturated with the odors generated in the pores of the wood. If wood must be used for sinks, use a solution of copperas frequently to keep them wholesome.

Another great source of miasm on the farm is the privy. If this is within the farm-house, as it should be for the comfort of the women, the vault should not be neglected for one day during the warm weather. If a barrel of dry earth or sifted coal ashes is placed conveniently to the vault, with a scoop in it, and each person cover his daily deposit with the dirt or ashes, the privy will give no occasion of offence or disease, and a big amount will be added to the fertilizers of the farm. A more convenient and systematic mode is to adopt the earth-closet plan, and put the sifted dirt or ashes in a box which operates automatically each time the closet is used. Indeed, an earth-closet has become almost an essential part of household furniture. It is much better than a water-closet for a farm-house, inasmuch as the fertilizing material can be utilized. The expense of an earth-closet is small, its benefits great. Human excrement, while rich in plant food—as much richer than barn-yard manure, as the food of man is richer than that of beast—is also pregnant with the seeds of disease if allowed to decompose and send off its gases into the air. The farmer, therefore, who neglects his privy is guilty of great neglect of the health of his family and the fruitfulness of his farm.

The barn-yard and pig-sty are also often the causes of miasm and death on the farm. They should not be too near the house. To quarter the cows and pigs right under the kitchen windows, as we have often seen done, indicates a want of taste as well as good sense. There is a place for everything, and the place for the pig-pen is just as far from the house as convenience will allow, and wherever it may be it should be kept well littered with some absorbent. With a large lot of hogs, the pens in July and August are apt to become a nuisance to a wide extent of territory, unless thoroughly cared for. The hogs themselves suffer, as well as the family, if not kept clean and comfortable. It is all a mistake to suppose that a hog does not know a bed of leaves from a bed of mud, and had as lief lie in one as the other. In a hot day he may take to the mud to cool himself from the effects of his superabundant fat, but he is too much of a gentleman to be dirty, if he can only be clean and comfortable at the same time. He certainly does not thrive in the dirt, nor does he allow the family to thrive if his dirty apartments contaminate the air of the house.

Not to prolong this subject, we will simply add that all stagnant water, all marshy places, are fruitful sources of miasm. Let the marshes be drained and the hollow places be filled up. Set out a row of white pines between the house and barn to ward off or absorb the effluvia; keep the homestead every way neat and the air pure, and the health and comfort of the household will amply compensate for the labor.

Beets for Cows.

Last year I raised a lot of mangolds and carrots. The mangolds were gathered first and put in the cellar; afterward the carrots were gathered and corded up on top of them, so that when I began to feed them to my cows the carrots came first. The cow gave about her usual quantity of milk, excepting the usual shrinkage on the accession of cold weather and being put upon dry fodder. Fearing that the beets would not keep as well as the carrots, and also thinking that they possessed better milk-producing qualities, I was anxious to get at them. Accordingly I removed part of the carrots and commenced feeding beets, when, to my surprise, my cow began to fall off her milk, until the deficiency reached about one-third. Wishing to test the matter still further, I changed back again to carrots, when her milk increased to about the usual standard. The quantity fed was about the same in either case—about a half bushel basket three-quarters full. If there was any difference it was in favor of beets.

Fresh against Old Slaked Fine Lime.

Messrs. Editors American Farmer:

L. wishes to know if there is any difference in the action of the hydrate and carbonate forms of lime on humus; and suggests that hydrate of lime has been supposed to render humus insoluble for a time.

He also thinks the first effect of hydrate is a diminution of the productive powers of the soil; but queries whether "such use of it may not be justified by its destructive effects on insects infesting the soil?"

I have never believed there is any material difference in the action of the two forms on humus.

Liebig was of opinion that humus is insoluble, without reference to lime, and that it never directly enters as food into plants.

But the doctrine has been assailed, especially by Prof. Johnson, of Yale, with some warmth and great force, and its insolubility appears to oppose Liebig's statements elsewhere.

It is agreed on all hands, so far as I am aware, that whether applied in the caustic or mild state, lime unites with the silica in barn-yard manure, forming silicate of lime which is slowly soluble to plants. This union liberates ammonia from the manure, and thus it is decomposed by the lime, whether carbonate or hydrate.

Lime therefore in no form should ever be applied to manures containing ammonia under circumstances allowing the escape of free ammonia. Earth will absorb it, if the process goes on in the soil. It may also be fixed by plaster.

I presume analogous results would ensue when lime, caustic or carbonate, come in contact with humus in the soil.

Humus presents a further state of decomposition than ordinary barn-yard manures, but the various stages are produced by like causes in each, and the final result of complete decomposition of all vegetable or animal substances, is the formation of carbonic acid and water.

The influence of lime in the soil, in any degree of mildness or causticity, is to hasten the final result.

It is, however, nonsence to talk about the effects of hydrate of lime *in the soil*. For the first thing it does is to absorb carbonic acid from the soil until it will take no more. Thus it is carbonated before it can have any action in reference to the plants, except to strip the soil of free carbonic acid. The only difference is that one absorbs carbonic acid and the other does not.

The notion that hydrate acts with greater energy on sour soils, like all other speculations about lime, has respectable authority in the books. But no explanation appears of the assumed fact that lime united with water is any better in the soil than the same in combination with carbonic acid, and it is contrary to experience.

Oxalic acid, a vegetable acid, is said to be the source of "sourness" in the soil.

It is prepared for medical purposes from the plants of the Sorril family, and sorrils are supposed to indicate souring in the soil.

If a patient be poisoned by oxalic acid, the United States Dispensatory prescribes the antidote of *carbonate*—not hydrate—of lime or magnesia. The carbonate of lime combines with the active poisonous acid in the stomach, forming a harmless body, called oxalati of lime. So we find all the alkaline carbonates neutralizing acids wherever they meet. Yet we are continually dingdonged to employ the *hydrate*, without any reason rendered, to effect the very purpose for which the *carbonate* is prescribed by the medical faculty of Europe and America, viz: the neutralizing of acids.

I have thoroughly tested the efficacy of caustic lime in the destruction of insects in the garden, and have never yet known it to destroy or to drive away any. Applied at the planting of turnips, radishes, cabbage, lettuce, and other small-seeded plants, it invariably resulted in their ruin.

The scattering turnip plants, cabbages, &c., that were able to form leaves at all, were half starved and sickly, and the feeble leaves that might have fed the plant, became, themselves, inviting food for vegetable parasites and for insects. The blighted organs of the plant were at once transformed into a *fertile soil* for propagation of innumerable hosts of jumping jacks and every sort of depredators until utterly devoured.

Healthy, vigorous plants are foes to insects and vegetable parasites; feeble plants are their friends and nourishers.

The influence of caustic lime on the enemies of plants is the same as empty troughs on the vermin of cattle. Impoverished cattle, like starving plants, are the soil for the propagation of parasites.

Mr. Fleming, of England, mingled hydrate of lime in one, and carbonate in another plot, and no manure in another, on which turnips were sown. The carbonate produced a wonderful increase in the yield, while the hydrate diminished it.

L. H. McGINNIS.

Hen Manure.

In a large part of the published statements of the profit on poultry, there is no mention made of the manure, but *it is* a very valuable fertilizer. The *American Agriculturist*, 1873, page 327, says: "Hen manure is almost exactly identical in quality and effect with guano, and may be used in the same manner. Its value, if free from foreign matter and dry, is $50 a ton." The *Poultry World* estimates it to be "almost equal to guano in richness" and a correspondent of the same paper says: "I would rather have it than Peruvian guano." The *Live Stock Journal* estimates "that a hen will produce one bushel of manure in a year, which, compared with the price of commercial fertilizers, is worth $1.00." Lewis Dunbar, West Bridgewater, Mass., according to statements in Flint's Report, 1871, values it at $1.00 a bushel, and again in 1872 at 87 cents a bushel.

But let us see how much a fowl will eat in a year, and then find out how much the manure from that amount of food would be worth. By statement of S. B. Bird, Farmingham, for six months ending September 20th, 1868, an average of fourteen fowls ate fourteen bushels of grain or 1.4 gills per day. By state-

ment of Lewis Jones, Wayland, for ten months ending September 1st, 1867, fifteen fowls ate twenty bushels of grain, or 1.2 gills each per day. By another statement of S. B. Bird, for eight months ending September 15th, 1867, sixteen fowls ate fifteen bushels of grain, or 1 gill each, per day. The writer found by experiment, that seventy fowls ate nine bushels of grain in twenty-three days, or 1.43 gills each, per day. I find an average of four statements to be 1.25 gills per day, or 1.78 bushels per year for each fowl.

Prof. S. W. Johnson estimates the nitrogen in commercial manures to be worth thirty cents per pound, potash seven cents, and soluble phosphoric acid sixteen cents per pound. I find by table in Flint's Report, 1872, page 167, that 1.78 bushels corn contain 1.8 pounds of nitrogen, which at thirty cents per pound is worth fifty-four cents; 0.35 pound potash at seven cents per pound, is worth two cents; 1.13 pounds phosphoric acid at sixteen cents per pound, is worth eighteen cents. Hence we find the fertilizing elements in 1.78 bushels corn to be worth seventy-four cents. Allowing ten per cent. for loss, we have sixty-seven cents, the value of the manure of one fowl for one year. I found that my seventy fowls in twenty-three days made five bushels of manure, which amounts to 1.36 bushels a year for each, consequently one bushel would be worth fifty cents. This is considerably less than some of the estimates I have collected, but I think it is very nearly correct. By feeding oats, bran and meal, the manure would be a trifle richer, but I think corn is the chief food given, and is a fair representative of the average quality of the food of poultry. Certainly the manure is too valuable to waste, and I think those farmers who have no place where they can confine their fowls, would find it to their advantage to build a good house and yard, and keep them in it most of the time, thereby saving the manure and their gardens too.—*Cor. N. E Farmer.*

Enormous Receipts of Corn in Baltimore.

During the month of June the receipts of corn were unprecedented,—the Canton elevator towards the close of the month being entirely blocked, and there being at one time seven hundred cars on the track loaded with corn.

The New York *Tribune*, of June 27, says:

"During the week ending May 27 New York handled 36 per cent. of all corn forwarded to the Atlantic ports; during the next week 25 per cent.; during the next week 17 per cent., and during the last week reported only 13 per cent. A more astonishing decline, a more disheartening defeat in competition, has rarely been recorded in commercial statistics. The returns for the week ending June 24 will be awaited with some interest. During the 9 weeks ending June 17, since the railway war began, New York has received 4,881,338 bushels of corn; Baltimore, 4,770,700 bushels; Philadelphia, 5,770,700 bushels; and Boston, 2,008,415 bushels. Last year, during the same weeks, New York secured about 38 per cent. of all corn sent to the seaports, and this year it receives only 25 per cent.

TENDER MOUTH IN HORSES.—Horses having any tenderness of the mouth are likely to bolt their food unmasticated, and it acts as an irritant in the stomach, causing a good deal of pain and inconvenience. Treatment—The removal of this source of irritation by a cathartic is the first step toward our treatment; for this purpose we administer a ball composed as follows: Barbadoes aloes, five drachms; powdered ginger, two drachms; linseed meal and syrup a sufficiency. After the immediate effects of this have passed away the animal may be fed on boiled oats and corn meal mixed, for two weeks, with one of the subjoined powders in it: sulphate of iron, two ounces; nitrate of potash, two ounces; carbonate of soda, two ounces. Mix and make sixteen powders. This ailment may arise from acute indigestion. It is, in that case, necessary to change his food and attend carefully to his diet. Give him boiled oats and bran or shorts, and, if you have them, carrots. He should have sufficient clean hay to keep the stomach in a normal condition. Put a handful of charcoal in the water he drinks.—*W. Rural.*

Ticks and Lice on Lambs.

If the sheep are examined and the lambs found dull and drooping and constantly nibbling their wool, they will be found infested with ticks, which have left the newly-shorn sheep and have gathered upon the lambs. The young creatures cannot stand the drain, and succumb rapidly. There is no remedy effective but to hand-pick them if the flock is small or to dip them if it is large. To dip them the following plan may be used: Provide a common washtub and an iron sap or soaplkettle holding fifteen gallons. In the latter, filled with boiling water, steep three pounds of common plug tobacco, or six pounds of stems, until the strength of the tobacco has been exhausted, and keeping up the heat of the water, but not allowing it to boil. Add to the hot decoction three pounds of flower of sulphur. Put half of this liquor into a washtub of such a size as will admit of the complete immersion of a lamb when held up by its feet without overflowing the liquor. The remainder of the liquor is to be left in the kettle over a small fire that will keep it hot. When the liquor in the tub has cooled off to 120° two persons should hold the lamb by its feet, back downward, and plunge it into the tub, entirely immersing all but its head and feet. The head should be kept out of the liquor and supported by one hand.

When the lamb has been kept in the dip for half a minute it should be taken out and held by another person in an empty tub or trough, into which the excess of liquor should be squeezed from the wool, and this liquor should be returned, from time to time, to the kettle, to be reheated. As soon as the lamb is partly dry it may be released into a dry yard until completely dry, but not into a pasture, lest the grass be fouled with the tobacco juice. As the liquor in the dipping tub loses its heat it is to be replenished from the kettle. This dip is certain and sudden death to to the ticks and their eggs, if used at the temperature mentioned, and is no injury to the lambs, al-

though some may appear sick and dizzy for a time when released from the operation. By following this plan every year after shearing, ticks, scab, and lice will be entirely prevented.

[The above, from the agricultural editor of the New York *Times*, will answer the inquiry of our Virginia correspondent, received too late for insertion in last month's issue.—*Ed.*]

On Road-Making.

The following, from an admirable and practical article by Alex. Hyde in the *N. Y. Times*, deserves careful reading, and we wish it could be reproduced in every county where the enormous tax inflicted by bad roads is still submitted to.

In the first place, the location of the road is important. Three things are to be considered as to location—the nearest route, the best grade, and the most desirable road-bed. It is not every tyro that is competent to secure these three things, and money is generally well spent upon an engineer who, with his instruments and practiced eye, will lay out a road to the best advantage. In locating and building highways, we can learn many things from the practice of railroad engineers. They always look over the route carefully with a reference not only to short cuts, but more especially to the grade and economy of construction, and a contractor without his engineer would make as bad steerage as a ship without its helm. Our fathers, in laying out their roads, made guess work, went by foot-paths or cow-paths, built over hills rather than around them, either with an idea of shortening distance or avoiding swamps, and often located to suit the convenience of some pioneer settler. The result is that our roads are crooked, steep and costly. The shortest route is not always in a straight line vertically. If a hill intervenes between two places, the chances are that it is no further around than over it, and if not, the grade around will probably compensate for the increased distance. The length of a kettle-bail is the same whether in a vertical or horizontal position. A horse on a level road can draw three or four times what he can on a steep ascent. It may not be best, however, to locate a road through a wet, swampy place. The bottom is apt to fall out of such a road, and it may be cheaper to grade a hill than to fill up a mucky swamp. The engineers lay down this rule, that the length of a road may be increased twenty times the height of the hill to be avoided; that is to avoid a hill a hundred feet high, it is better to go two thousand feet around it. The longest way round will be found the shortest way home.

If a road must be laid over a wet place, and especially if it is one full of springs, the most economical mode is to drain the road-bed with tile before putting a load of dirt upon it. Indeed, a 4-inch tile placed under a road built upon clay soil, with any incline to it, is one of the best investments that can be made by the road-maker. It insures a dry road-bed twelve months in the year, and pays for itself each year in saving the expense of repairs. Jack Frost does not "turn up jack" on a drained road. If stones are plenty near by, the foundation of the road may be made of them, which will answer every purpose if occasionally an outlet is made for the water into the side ditches. These outlets are best made of tile. Thorough drainage is as essential for a road as for a farm.

The road being located and drained, the next question is, of what shall it be constructed? The temptation is to turnpike it with the sods and surface soil from the road-side. This can be scraped up in a jiffy, and at trifling expense. True, but this surface soil is full of vegetable matter, and with the first rain will make a track as soft as hasty pudding. Enough of this material may be scraped upon the road to make side ditches and lay the foundation of the road, but the superstructure should be gravel. It pays to haul gravel for miles. There is no road material to be compared with it. With a surface of eight or ten inches of gravel a road is dry whether it rains or shines. There is nothing in gravel to absorb the water, and it consequently percolates through it as through a sieve, but the sods and surface soil which form the material for most of our country roads being full of vegetable matter, absorb water like a sponge. The sods had better be applied to the compost heap or the potato patch, and gravel substituted in their place on the roads.

Gravel is not, however, to be found in every town, and in this case the next best thing must be used. McAdam's plan can in some cases be adopted, building the road with coarse stones at the bottom and more finely pounded ones at the top. This is expensive, but many towns own a stone-crusher, and find it economical to construct their thoroughfares in this way. This is the favorite European mode of building roads, and it has the advantage of permanency. A macadamized road, once thoroughly built, is built forever, but we have so many roads and so many enterprises demanding development that we cannot afford such an outlay for posterity, except in localities where the travel is so great as to warrant extra expense. Besides, stones are in some places as scarce as gravel. Subsoil can be found everywhere, and if it is the best material that can be found no one can complain. We certainly prefer it to plank, which is expensive and short-lived. Coal ashes, if they can be obtained in sufficient quantity, make a very dry road, but they are better adapted for walks than roads, as wagon wheels grind them into fine powder and they are scattered by the four winds.

Our country roads are very apt to be too narrow. They look as if intended for what railroaders call a single track, and narrow guage at that. It is not pleasant to ride constantly in apprehension of meeting another team, and with insufficient space for turning out. It costs but little more to build a road twenty feet wide than one twelve feet wide, and twenty is the minimum width which good engineers allow. Two loads of hay can barely pass each other on such a road. In highway travel it is the narrow road that leads to danger and death.

Another suggestion is that country roads are generally too convex, "hog-backed," as a farmer once expressed it to us. The object in building

a road roof-shaped is to make a water-shed, and a certain degree of convexity is desirable, but no one likes to ride on a ridge-pole, much less on the side of a roof. The slope on either side should be sufficient to take off the water without involving the necessity of a ridge—thank'e ma'am—every few rods.

No law of curvature can be laid down applicable to all situations and soils, a hill road and one made of loam requiring more convexity than level roads, and those made of gravel. Road engineers say one foot rise in twenty is sufficient on a well-graded and hard road. This would make the centre of a twenty-feet wide road six inches higher than the outside; but most of our country roads, certainly in hilly sections, require more rise than this, or the water will follow the ruts, and soon convert them into gullies.

While abhorring the crowning glory of some of our country roads, our greater abhorrence is of the water bars placed across the hill roads every few rods. These wrench horse, harness and carriage terribly, beside making unnecessary elevations to overcome. We once counted forty of these thank'e ma'ams on a side-hill road half a mile long: that is there was a bar in each rod on an average, and as each bar was at least half a foot high, we had twenty feet of unnecessary perpendicular ascent to overcome. The great trouble occasioned by these bars, however, is not in the ascent. They cause shipwreck of horses and vehicles by the sudden jerk which they give while descending the hills. In some places they may be necessary, but let them be built with proper curvature and grade.

We must not omit to say that the fine dirt which is washed from the surface of the road is not fit to be put back again. Ground into fine powder by the heavy wheels, and mixed with the excrements of horses and the wear of the iron tires, it is most excellent top-dressing for land, but not for roads. Put it around pear trees and it does good service, but on the road it makes dust and mud of the worst kind. A farmer can well afford to exchange gravel for this road-wash, and cart the gravel half a mile.

We intended to say a word about making Tom, Dick and Harry road surveyors and working out road taxes with their children and teams when no other work presses. We can never have good roads under this system. Skilled labor is the cheapest everywhere, and nowhere more so than in road-building and repairing.—Almost everybody thinks he can make a road, just as he thinks he can preach a sermon or edit a newspaper; bnt there is a trick in every trade, and road-making is a trade that cannot be learned with a few days practice in holding scraper.

Butter in France.

If our dairymen need a spur, an eye-opener, a lesson which speaks volumes in three words, here is one at the head of this article. Butter is actually brought from France and sold by the New York dealers. And this is thus because there is an actual scarcity in the market of good butter put up in an attractive shape for small consumers. When we know that one dairyman gets $1.15 a pound for his products, another $1, and another 75 cents the year round, at his dairy door, it is easily seen that it will pay to bring butter across the ocean from France, if it is only good and shapely enough to suit the fastidious purchasers who will have something nice, whatever it may cost. All this butter is made from choice cows, choicely fed on clean sweet food; the milking is done in the cleanest manner. The milk is handled as carefully as though it were nectar, the cream is churned with clock and thermometer, the butter is worked with skill, and is made up in shapely cakes, which do not require to be cut when brought to the table.

Baltimore Markets—June 29.

The quotations below are Wholesale Prices.

Breadstuffs—*Flour.*—Market quiet, with light local demand. Quotations are as follows: Howard Street Super $3.75@4.50; do. Extra, common to fair, $4.75@$5.00; do. good to choice do. $5.25@5.50; do. Family $6.00@7.00; Ohio and Indiana Super $3.25@4.25; do. Extra $4.50@5.50; Northwestern Spring Extra $4.75@$5.25; City Mills Super $3.50@4.00; do. Standard Extra $4.50@6.00; do. Rio brands do. $7.50@7.75; Fancy brands $8.75. Rye Flour $4.25@4.75; Fine Flour $4.00. Corn Meal, City, $2.50@3.25; Western $2.40@2.50.

Wheat.—Market quiet and prices irregular. Southern red, good to prime, is quoted at 140@143 cents; do. Amber, prime, 145 cents; Pennsylvania red 135 cents.

Corn.—Southern firmer, especially white; Western heavy. We quote Southern yellow 57 cents; white 56@57 cents; Western mixed 53¾ cents.

Oats.—Quiet and firm. Good to prime Southern 38@40 cents: do. Western mixed 31@34 cents: good to choice bright Western 34@38 cents.

Rye.—Dull, with sales at 70@75 cents for good to prime.

Cotton.—Steady and quiet, with quotations nominal, as follows: Good Middling 12 cents; Middling 11¾@11¾ cents; Low Middling 10¾ cents; Good Ordinary 9¾ cts.

Hay and Straw.—Cecil Co. Timothy $19@20; Pennsylvania $16@18; Mixed $13@16; Clover $12@13; Oat Straw $11@12; Rye do. $20@21; Wheat do. $9@11.

Live Stock.—*Beef Cattle*—Show some improvement. Quotations: best on sale 4¾@5¾ cents; generally rated first class 4¼@4¾ cents; medium or good fair quality 3¾@4¼ cents; ordinary thin steers, oxen and cows 3¼@3¾ cents.

Hogs.—Fair supply and moderate demand. Prices firm, tending upwards. We quote at 8@8¾ cents for fair to best.

Sheep.—Dull, with prices ranging from 4 to 5 cents. Lambs 5@7 cents ₱ lb. Stock Sheep $2@3 ₱ head.

Provisions.—Prices advancing and market firm. We quote Shoulders 8¼ cents; clear-rib Sides 11¼ cents; Bacon Shoulders 9 cents; clear-rib Sides 12 cents; Hams 14¼@15¼ cents; Lard 12¼@13 cents; Mess Pork $21. *Butter*—Good stock in demand; low grades dull. New York Tubs 23@26 cents; Western 14@21 cents. *Eggs*—18 cts. *Cheese*—Easier, 11@12½ cts.; Western 9@11 cts.

Tobacco.—Maryland frosted $3.00@4.00; common to good sound $4.50@5.50; middling to fine $8.00@11.00; fancy $12.00@15.00.

Salt.—Liverpool Ground Alum $1.15@1.25; Fine $2.00 ₱ sack. Turk's Island 30@35 cents ₱ bushel.

NEW ADVERTISEMENTS.

James L. Sutton—Poland-China Pigs for Sale.
N. E. Berry—Farm Machines at a Bargain.
B. M. Rhodes & Co.—Orchilla and South Sea Guanos.
Cromwell & Congdon—Agricultural Implements and Machinery.
Jno. M. Rhodes & Co.—Rhodes' Standard Manures for all Crops.
Maryland Fertilizing Company—Fertilizers for the Wheat Crop.
R. W. L Rasin & Co.—Soluble Sea Island Guano for Wheat.
R. J. Baker & Co.—Stag Brand Super-Phosphate.
P. Zell & Sons—Zell's Ammoniated Super-Phosphate.
Philadelphia, Wilmington and Baltimore R. R. Co.—Centennial Excursions.
Canfield Bros. & Co.—Jewelry, Watches, Silverware, &c.
W. G. Price, Jr.—German Potash Salts.

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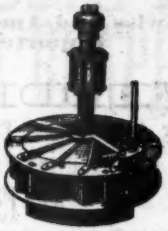

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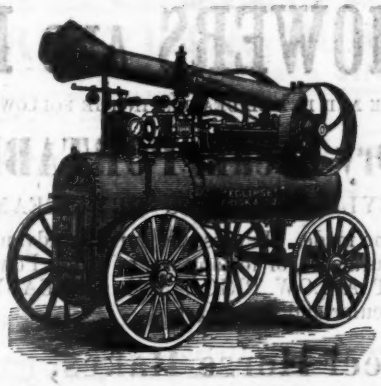

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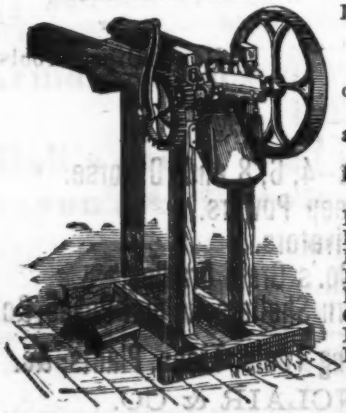

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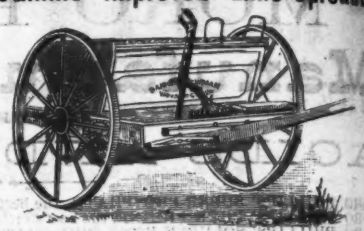

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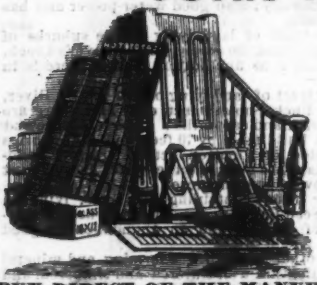

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MANUFACTURERS OF

Oil Vitriol

AND OTHER CHEMICALS.

Office, 104 Lombard St., up stairs,
Works, Clinton and First Sts. and 9th and 10th Aves., Canton.

BALTIMORE, MD.

ALL ORDERS PROMPTLY ATTENDED TO. nov-1y

Chesapeake Chemical Works.

SALT CAKE. (Sulph Soda.)
KAINIT. (Sulph. Potash.)

OIL VITRIOL

NITRATE SODA.
CHLORKALIUM (Muriate Potash.)

MANUFACTURERS AND MANIPULATORS OF PHOSPHATES ON ORDERS AND FORMULAS FURNISHED BY OUR FRIENDS.

To those who want to manipulate their own Phosphates, we offer a full line of PURE MATERIALS.

Having completed extensive improvements and additions to our Works, giving us increased facilities, we are now prepared to execute orders with greater promptness, and deliver goods in much better mechanical condition than heretofore.

We offer to the Trade the following Goods, all of which are absolutely Free from Adulteration:

DISSOLVED GROUND BONE,

Containing 3 per cent. of Ammonia.

DISSOLVED SOUTH AMERICAN BONE ASH.

DISSOLVED SOUTH CAROLINA PHOSPHATE.

SLINGLUFF & CO.

OFFICE, 155 W. Fayette Street. WORKS, Foot of Leadenhall St.

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Fertilizers

For Cotton, Tobacco, Corn, Oats & Vegetables.

SOLUBLE SEA ISLAND GUANO,

A concentrated manure of undoubted excellence for

COTTON, TOBACCO, CEREALS AND VEGETABLES.

Ammoniated Alkaline Phosphate.

The Patron's Manure—sold on special terms to Grangers.

DRAKE'S BRANCH, VA., AUGUST 15TH, 1875.

RESOLVED, That we express to R. W. L. Rasin & Co. our entire satisfaction as the result of the use of their ALKALINE PHOSPHATE the present season on tobacco.

W. E. McNERY, MASTER.

BUSH RIVER GRANGE, No. 12, SEPT. 17TH, 1875.

RESOLVED, That we express our satisfaction to R. W. L. Rasin & Co. as to the very favorable results of their Fertilizer, (ALKALINE PHOSPHATE) used by this Grange for the past two years.

J. A. SHACKELTON, SECRETARY. WM. P. DUPOY, MASTER.

BALTIMORE AND TEXAS FERTILIZING COMPANY'S

PURE BONE FLOUR AND MEAL,

From our Extensive Texas Factories.

Ammoniacal Matter.

An Ammoniate superior to Peruvian Guano.

POTASH SALTS, DISSOLVED BONE PHOSPHATE, &c.

IN STORE AND FOR SALE BY

R. W. L. RASIN & CO.

S. W. Cor. South and Water Sts.,

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